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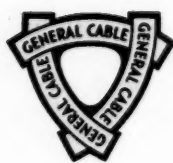
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RAILWAY AGE

Our Need of Economic Statesmanship

Measured by the decline of railroad car loadings, the depression of 1921 lasted 14 months. Measured by car loadings, the present depression at the beginning of March had lasted 17 months. In other words, this was the length of the period during which car loadings were less in each month than in the corresponding month of the preceding year. Railroad freight business grew steadily worse from October 1, 1929, to January 1 1931. Since then it has not become relatively better; but it is also true that it has not become relatively any worse. All indications are that a gradual improvement is beginning, but that traffic throughout the first half of 1931 will be less than throughout the first half of 1930. If this should be the case, the present depression, measured by car loadings, will last seven months longer than that of 1921.

In view of the optimism regarding fundamental economic conditions and business prospects that was widely expressed in the latter part of 1929 and the early part of 1930 by both public men and business men, this outcome must be regarded as hardly less than astounding. It demonstrates that the claims that were made as to the soundness of fundamental economic conditions in this country were themselves entirely unsound.

Prosperity Answers All Criticism

It is almost useless during a period of real or apparent prosperity such as that which existed from the early part of 1922 to the latter part of 1929, to criticize important government and business policies. Criticisms of these policies at such a time is answered by referring to the prevailing prosperity, and the critic merely get himself regarded as an ignorant or prejudiced pessimist. Critics of important business and government policies that prevailed during the recent period of prosperity should be able to get a better hearing after the depression already has lasted 17 months. It should be evident that there was something wrong with policies which plunged us into, or at least did not save us from, the longest depression that has existed in a third of a century.

It is plain now that our recent period of prosperity

was one of great inflation, and that such a period of inflation had to be followed by a period of deflation, with the accompanying depression. If important policies of our national, state, and local governments have been largely responsible either for the inflation, or the subsequent deflation and depression, no public man has as yet conceded this by making a constructive criticism of those policies. It is a fact, however, that our recent period of prosperity was also a period of greatly increased government activities and expenditures.

Increased Taxes and Depression

Total taxes paid by the American people in 1913, the year before the war, were \$2,187,000,000. In 1923, five years after the war ended they were \$7,234,000,000. In 1928, ten years after the last year of the war, they were \$9,289,000,000, an increase within five years of more than \$2,000,000,000, or about 28½ per cent. The pre-war dollar had a greater value and purchasing power than the post-war dollar. Even equating for this change in the value of money, the total tax burden in 1928 was over 200 per cent greater than in 1913. During the recent years of prosperity the national income was increasing, but taxes were increasing relatively faster. In 1913 they were only 6.4 per cent of the entire national income; in 1923 about 10 per cent, and in 1928 about 12 per cent. The war accounts for a large part of the increase in taxes between the pre-war and post-war years, but, of course, it had nothing to do with the enormous increase of \$2,000,000,000 annually that occurred in the five years ending with 1928.

The increases in taxes since the war are divisible into those due to increases in the functions or extravagance of our various governments, national, state, and local, and those due to expenditures for public improvements. To analyze herein the causes and effects of increases in expenditures due to the enlargement of the functions or the extravagance of government would be impracticable.

Expenditures made for public improvements, such as highways, waterways and public buildings, raise different questions. These expenditures usually are made for economic purposes similar to those for which private

capital is invested. Private capital always is invested for the purpose of getting interest or profits, and if the return earned upon it is less than the current rate of interest it is considered partly lost, while if no return is earned it is considered entirely lost. As a matter of economics, there is no difference whatever between capital invested by private enterprise and capital invested by governments. If a return less than the current rate of interest or no return at all is earned upon capital invested by government, part or all of that capital is sunk and lost. Its expenditure may temporarily give employment to labor and artificially increase prosperity, but once it is largely or wholly lost the result is as certain to be a tendency to reduce employment and cause depression as the loss of an equal amount of private capital.

Public and Private Investment

There is, however, one vital difference between the investment of private and public capital. When an investment is made in a railroad or a manufacturing plant it is always possible to determine approximately how large a return, if any, is earned upon it. When an investment of public capital is made by government it is often impracticable, and usually no attempt is made, to determine whether any return is or is not earned upon it. Nobody knows how much capital has been invested in the facilities used by the postal department, and therefore nobody knows what return should be earned upon it. Nobody knows, or has even attempted to determine, whether the vast investment made by the federal, state, and local governments within recent years in highways is directly or indirectly producing an economic return. The real economic issue regarding the investment of public capital in inland waterways is whether it will result in a reduction of direct transportation costs exceeding the increase in taxes it will cause, but advocates of the development of inland waterways, including business men who should know better, try to evade this issue either by talking solely about reductions in freight rates or by indulging in generalities regarding "all the benefits" that the public will receive.

Information regarding the extent to which the recent inflation and the present depression have been caused by huge investments of public capital upon which an inadequate economic return is being earned would be extremely important and valuable. No investigation of this, however, is being made or is even being suggested. On the contrary, large public expenditures are being urged and made as a remedy for a depression of which similar previous expenditures may have been one of the principal causes. It is a certainty that huge government expenditures upon waterways and highways, without the levying of adequate charges for their use by those who use them for commercial purposes, has resulted in a great duplication and over-expansion of transportation facilities which is one of the

principal causes of the severity with which the depression has affected the railroad industry.

Whether taxes do or not increase greatly during periods of prosperity, they usually decline little or not at all in periods of depression. Therefore when the income of general business declines during a depression, the burden of taxes relatively increases, and when that burden is so vast as it is now it inevitably tends to deepen and prolong a depression.

Of course, there have been numerous other causes of the recent inflation and the present depression besides the enormous increase in government expenditures and in the resulting taxes. One of them has been the government's policy of railway regulation, which too narrowly restricted the earnings of the railways when business was good, and, in consequence, has made it necessary for them during the depression to make the most drastic retrenchments in purchases and employment.

Another policy for which business itself is responsible and which unquestionably has contributed both to inflation and deflation, has been the policy of installment buying—or rather, of installment selling. There was far more of this during our recent prosperity than ever before. If a large part of the people, under the stimulus of installment selling, spend four year's income in two years, it is plain that there is likely to be inflation during the two years that they are spending the money, and deflation during the two years that they haven't any to spend.

Need of an Economic Program

It is at a time such as the present that the economic causes of both our recent unusual prosperity and the prevailing unusually long depression should be carefully studied and means sought of preventing similar developments in future. The most statesmanlike discussion of the subject that has come to our notice is an address entitled, "The Price of Prosperity," that was delivered by Melvin A. Traylor, president of the First National Bank of Chicago, at Dallas, Tex., on January 29. After having sketched the causes of both our recent prosperity and depression, and especially referred to the destructive policy the national and state governments have followed in dealing with the railroads, Mr. Traylor said: "Is it too much to hope that out of the chaos of the moment we may evolve a national policy which will hereafter be a constant and guiding program marking the relation of government and business? * * * Is it asking too much of reasonable men in business and government to sit down together and endeavor to formulate such a policy? * * * If it be true, as I believe, that a sound social order must rest upon a stable economic condition, which in turn is possible only if we have a sound political program, then there will be much for each group to abandon of selfishness, and equally much for them to embrace in the matter of constructive co-operation."

Present conditions demonstrate that the greatest need of the nation is economic statesmanship which will thoroughly investigate the causes of recent economic developments and determine the means which, if employed in future, will prevent their recurrence. These developments reflect no credit upon our leaders in either government or business. They are enough to undermine the confidence of millions of people in our entire present political and economic system. If the needed economic statesmanship is to be furnished it will have to be furnished largely by leaders in business, who will have to recognize the fact that, in the long run, narrow minded and selfish policies in business, whether used to get subsidies from the government for the supposed benefit of certain business interests or for other purposes, are as bad in the long run for business as narrow minded and selfish policies employed by public men for the purpose of improving their political prospects.

Is there enough economic statesmanship in our public and private life to solve the nation's economic problems, or are our leaders in public life and in business merely blind leaders of the blind who will continue at short intervals to land in the ditch along with the public because they cannot foresee any better than the public the effects of prevailing government and business policies?

Successful Rail Car Use No Secret

The "secret" of the successful use of power rail cars is in reality no secret at all, but has been demonstrated on a number of roads to be comprised in the following general policy: Don't overload or overspeed the equipment beyond limits contemplated in the original design; make sure that adequate lubrication is provided to vital parts at all times; develop a systematic method of daily inspection and maintenance which will assure consistently satisfactory service and without which, such service can neither be reasonably anticipated nor attained in actual practice.

This general policy is a good one to follow with all classes of railway motive power. It is particularly essential in the case of power rail cars of all types, including the gas-electric driven cars which have figured so prominently in railway purchases of power rail equipment in recent years. The inherent characteristics of the internal-combustion engine are such that it must be operated within rather definite load limits, receive ample and uninterrupted lubrication and be adequately maintained. Experience has shown that this mechanical attention can be given at a cost of about 6 cents a mile for labor and material and keep the gas-electric cars in condition to make upwards of 98 per

cent of their assigned mileage, a performance which, from the point of view of reliability, is not exceeded by that of any other class of railway equipment.

In addition to this moderate charge of 6 cents a mile for mechanical attention, an approximately equal amount must be spent for lubricating oils and fuel, the total operating expense, exclusive of interest and depreciation charges, seldom exceeding 30 cents a mile, which is roughly 50 per cent of the cost of equivalent steam train service. Making generous allowance for interest and depreciation charges, a number of railroads have shown returns up to 30 per cent or more on the investment in gas-electric rail equipment through substantial reductions in operating expense. Proper inspection and maintenance of gas-electric equipment are a small price to pay for economies which, without this necessary mechanical attention, will largely fail to materialize.

Motor Coach and Truck Taxes

Two organizations opposed to higher taxes upon motor coaches and motor trucks have recently prepared and distributed pamphlets to support their case. One of these pamphlets is the 1931 edition of "Highway Tax Costs" by John E. Walker, and is a publication of the National Automobile Chamber of Commerce. The other is entitled "The Motor Bus Tax Burden," and was issued by the National Association of Motor Bus Operators.

The general theme of the Walker bulletin is that motor trucks are paying substantially more in special motor vehicle taxes than are private automobiles, and that special motor vehicle taxation in general is the source of the greater part of the money used in constructing and maintaining highways. "The Motor Bus Tax Burden" seeks to prove that motor coaches not only are now heavily taxed, but that they are taxed much more, in proportion to the taxes on other motor vehicles, than they should be. As it does not contend that motor vehicles in general are too heavily taxed, it definitely places the National Association of Motor Bus Operators on the other side of the fence from the owners of private automobiles, since a reduction in motor coach taxes without a reduction in total motor vehicle taxes would naturally require higher taxes upon private automobiles. This seems to be a strange attitude for the National Association of Motor Bus Operators to take, in view of the fact that it is affiliated with the American Automobile Association, which is the national association presumed to represent the private motorists.

In the available space it is impossible to attempt to analyze the pamphlets in their entirety. However, one

or two points in each of them, which offer the best possible evidence that upward adjustment in motor coach and motor truck taxes is justified, can be discussed briefly.

One of the most interesting features of the Walker pamphlet is a table showing average taxes on a three-ton truck, in the first instance privately operated, and in the second instance operated as a common carrier. This truck is assumed to have a net weight of 7,000 lb., a gross weight of 13,000 lb., a 10,000-mile annual mileage when privately operated, a 25,000-mile annual mileage when operated as a common carrier, and an annual gross income of \$15,000 when operated as a common carrier. It is interesting to note that on these assumptions the common carrier truck would have a gross revenue of 60 cents a mile and that it would be paying only three per cent of its gross revenues in registration fees and gasoline taxes, which would seem to be nothing for any motor truck operator to complain about; but this can be disregarded. Mr. Walker estimates that the average three-ton truck, privately operated and equipped with pneumatic tires, paid \$66.22 in registration fees in 1930, and \$95.05 in gasoline taxes, based on a gasoline consumption of 2,500 gal. This makes a total of \$161.27. At the same time, according to Mr. Walker, a pneumatic-tired three-ton truck operated by a common carrier paid \$268.68 in registration fees and \$190.10 in gasoline taxes, based on a gasoline consumption of 5,000 gal., or a total of \$458.78. (Mr. Walker here has made a mistake in arithmetic. The average registration fee, on the basis of his figure for each state, would be \$255.03 instead of \$268.68. But let that go.)

If this table of average taxes is to be taken at its face value, no further proof of the necessity for readjustment in motor truck taxes is necessary. The average common carrier truck registration fee of "\$268.68" appears fairly substantial. But we find a range in taxes in the various states from \$18 in Missouri to \$900 in North Carolina. Will anyone representing the motor truck interests contend on this evidence that the motor truck tax situation should not be changed? Furthermore, we find that 32 of the 48 states listed taxed this average three-ton common carrier truck substantially less than the "\$268.68" indicated by Mr. Walker as the average for the country as a whole. Of the states in which over 100,000 trucks were registered in 1929, only California and Wisconsin taxed this average three-ton truck operated by a common carrier at a rate higher than Mr. Walker's average. But eight states with large truck registrations taxed this average three-ton truck in a smaller amount. For example, the Illinois registration fees amounted to \$205; the Indiana fees, \$35; Michigan, \$157.50; New Jersey, \$48; New York, \$52; Ohio, \$140; Pennsylvania, \$90; and Texas, \$119.

Another point which Mr. Walker overlooked, or at least failed to mention, is that in 27 of the 48 states

contract carrier trucks are taxed upon the same basis as privately operated trucks, not as common carrier trucks. It is a matter of general knowledge that the contract carrier truck is much more of a factor in motor truck transportation today than is the common carrier truck, and it is this type of motor vehicle which enjoys the greatest advantages in lack of regulation and in minimum taxes.

A somewhat similar table is a feature of "The Motor Bus Tax Burden." This tabulates the average taxes paid in the different states by an average common carrier motor coach, assumed to have a capacity of 25 passengers and to be operated in intercity, intrastate service. This motor coach is assumed to have a net weight of 10,750 lb., a gross weight of 14,500 lb., 45 h.p., 525 cu. in. piston displacement, a value of \$8,850, an annual mileage of 47,250, an annual passenger mileage of 475,000, an annual gross revenue of \$13,500, and an annual gasoline consumption of 9,050 gal. Here, again, we find an excessive range in the amount of taxes paid in the various states. In New York this motor coach would pay \$172.06 in taxes, while in Iowa it would pay \$1,276.41. What further evidence is needed to indicate the necessity for an adjustment in motor coach taxes?

If an adjustment is necessary, should it be generally upward or downward? Obviously motor coaches and motor trucks are paying substantially more in special motor vehicle taxes than are private automobiles. But this is quite natural. The intercity motor coach and the intercity motor truck operate almost exclusively on rural roads, for the construction and maintenance of which special motor vehicle taxes are levied. The private automobile, on the other hand, undoubtedly accumulates a much smaller proportion of its mileage on rural roads. Furthermore, motor coaches and trucks operating in intercity service cover many times as many miles in a year as an average private automobile. They weigh several times as much as an average private automobile. Why should they not pay many times as much in motor vehicle taxes?

Furthermore, the heavy intercity motor coaches and still heavier intercity motor trucks are solely responsible for the extra-expensive highway construction which is necessary to support these heavy vehicles. It is certainly not unreasonable to contend that the difference in the cost of construction of a highway adequate to support a private automobile and the cost of construction of a highway adequate to support a heavy motor coach or motor truck should be borne wholly by the heavier vehicles. We have yet to see evidence showing that the heavier vehicles are now bearing this extra expense.

The obvious conclusion is that private motorists, the operators of motor coaches and motor trucks, who never use rural roads, and the general tax-paying public, are assuming a burden which rightfully belongs to intercity motor coaches and trucks.

America's "Five-Year Plan"

David B. Robertson, labor executive,
thus characterizes the government
waterway venture in contending that
waterway need is illusory; condemns
present policy of subsidization



Photo Courtesy of "Labor"

David B. Robertson

CHARACTERIZING the government-operated Inland Waterways Corporation experiment as the American "Five-Year Plan," David B. Robertson, president of the Brotherhood of Locomotive Firemen and Enginemen and chairman of the Railway Labor Executives Association, speaking before the New York Discussion Group of the National Association of Owners of Railroad and Public Utility Securities, pledged the support of the labor organizations which he represented to the railroads in their campaign to check the extension of subsidized competition on inland waterways. Pointing out to the security owners that "you essentially have the same point of view toward prosperity and stability as we, who invest our labor in the operation of railroads" and contending that "the waterway need is illusory," Mr. Robertson continued to urge that "before we embark on economic experiments, which so vitally concern the finely attuned mechanism of industry, evidence must be had beyond a reasonable doubt that the results will be worthy of the trial."

"With thousands of idle cars available for loading; with thousands of miles of railroad transportation facilities reaching into every corner of the country; with thousands of idle locomotives available for service, and a quarter of a million railway employees sadly in need of employment," he asked, "can it be conscientiously contended that additional millions of the people's money should be spent in attempting to build up and maintain a system of inland waterway transportation?"

The labor executive was one of four speakers in a discussion of inland waterways and railroad credit. The other three were: Dr. H. G. Moulton, director, Brookings Institution, Washington, D. C.; Maj. Gen. T. Q. Ashburn, chairman and executive, Inland Waterways Corporation, and Samuel O. Dunn, editor of *Railway Age*.

Labor's Stake in Railroads

Mr. Robertson opened his address with a reference to the mutuality of interest between railway labor and railway security owners, pointing out that relations between the two "in the recent past have been not only cordial, but constructive in promoting the utmost prosperity and stability of our national system of transportation." With next an expression of hope that "this cordial relationship will develop and that every individual who has an interest in the industry will come to accept

and practice the principle expressed in the axiom, 'the injury to one is the concern of all,'" this speaker continued in part as follows:

"The distressful economic conditions through which we are passing have borne heavily upon railroad labor in proportion to the effect on the railroads. When the railroads suffer, labor through unemployment also must suffer. Labor's stake in the railroads is two and one-half times that of investors. While \$1,000,000,000—if it is earned—may go to fixed charges, dividends and surplus, \$2,500,000,000 first goes to labor, regardless of the \$400,000,000 paid in taxes. Labor's financial losses in the present business depression are tremendous. Its resultant human suffering imposes a burden which has strained almost to the breaking point.

"Waterways were a principal means of transportation in our national life preceding and following the introduction of steam locomotion. But since the efficiency of rail transportation has been shown to excel transportation by inland waterways, the railroads have consistently attracted private investment, against little or no investor interest in waterways.

"There is merit to any river or harbor development which sustains military or naval protection or promotes our commercial intercourse with other nations. That is not the question at issue. Let us examine the real issue involved. Every economic enterprise must be predicated on an economic need. If the need cannot be fulfilled other than by recourse to government aid, the public must support it through taxation. Similarly, only if private accord cannot be reached, the authority of government must be instituted. The facilities of private ownership must be exhausted before public ownership is sought.

Hidden Costs Absorbed by Public Budget

"But I contend that the waterway need is illusory. Ever since 1903 when the New York Barge Canal was authorized, groups of special interest shippers have been knocking at legislative gates for inland waterway development. They have consistently alleged the need for transportation facilities by water when existing rail and highway facilities, properly developed, could adequately care for all traffic necessities, without establishing a more costly and slower method of transportation, although at a lower price to the shippers because hidden costs are absorbed by the public budget.

"What is the record of some of the waterway experi-

ments? The cost of the Barge Canal to the people of New York for 1905-1929 was in excess of \$273,000,000, yet in a report to Governor Smith and the New York Legislature dated February 14, 1927, the Superintendent of Public Works stated:

"Though 1926 proved to be the record year for tonnage on the Barge Canal, it is useless to say that a canal designed for a maximum capacity of 20,000,000 tons is doing a satisfactory business when it carried only 2,369,267. In a special report to his Excellency, regarding the Barge Canal, dated February 26, 1926, I pointed out that the main reasons why the canal is not more used are:

First—that it is ice-bound for five months each year;
Second—that it is handicapped by fixed bridges, which require boats of special design to navigate this waterway."

"And in a special report in the same year, the Superintendent stated:

"There are 15 terminals or terminal sites not located on the canal which the state should dispose of * * * *. These terminals have already cost the state merely to purchase and improve, \$6,917,313.71. To complete them as originally designed would cost an additional \$4,527,000, making a total investment of \$11,444,313.71, every dollar of which, so far as canal benefit goes, is, or would be, wasted."

"All this to fill a mythical need. Now comes the proposal for the Federal government to relieve New York State of the Barge burden; to take over the ownership and operation of the canal, at a cost of \$2,500,000 a year, leaving the state with a debt of \$150,000,000 and nothing to show for it."

Waterways Popular with Federal Government

"Waterways must be very popular with the federal government. Is it because they are tax exempt? Have we not had enough of such experimentation? No, our waterway advocates, seeing a bare possibility of lower freight rates by federal subsidy at the expense of the railroads, are not satisfied. Nothing short of an expansive and expensive trunk line system, comprehending the 27,000 miles of inland navigable rivers, will make them content for the time being. Six feet, nine feet, twelve feet and presently twenty-five feet to accommodate ocean going vessels up the Mississippi to St. Paul, may be a future goal, so long as public funds are used for the purpose."

"It is amazing how this ephemeral need has persisted. President Roosevelt in 1907, when the Inland Waterways Commission was created, wrote:

"It is common knowledge that the railroads of the United States are no longer able to move crops and manufactures rapidly enough to secure the prompt transaction of the business of the nation, and there is small prospect of immediate relief * * *. There is reason to doubt whether any development of the railroads possible in the near future will suffice to keep transportation abreast of production."

"Yet rail traffic from the time he made this statement until 1929 doubled with comparatively little increase in track mileage. Moreover, traffic has been moved more efficiently and expeditiously to the increasing delight of shippers."

Capacity of Railways Adequate

"Now we are again toward the crest of a wave of sentiment demanding the utmost development of transportation by inland waterways. The same arguments are used, newly polished. 'The growth of population within twenty-five years would produce such an increase of traffic that the railways would be unable to meet it,' said Mr. Hoover when Secretary of Commerce, yet today there are more than 250,000 railway employees out of work, because carloadings have substantially declined. The capacity of our rail carriers is sufficient at present for a material increase in traffic and can be further developed to handle double the present traffic, to public

advantage and the proper remuneration of stockholders and employees."

Land Grants and Taxes

"Sometimes our waterway friends refer to the land grants given the western railroads sixty years ago, in justification of their case. My answer is that the railroads were then replacing the covered wagon, and were equally pioneers in the service of civilization. And these land grant railroads are still paying the government by supplying it with the means of transportation of mail, freight, troops and military supplies at reduced rates for the land granted to them about the time of the Civil War. And this they must do, I expect, until the millennium. Furthermore, there seems to be disregard of the fact that the railroads, in the past decade alone, have paid to government more than three and one-half billion dollars in taxes. Yet most of them, by admirable efficiency have maintained the earning requirements necessary for their credit. The situation of today is not comparable with that of sixty years ago when a system of railroad transportation reaching across the continent was deemed necessary for the advancement of civilization."

Inland Waterways Corporation Deficit

"The experiment in which General Ashburn has been engaged has the finest management public ownership and operation can have, yet it shows a net deficit. From the organization of the Inland Waterways Corporation to December 31, 1929, the sum amounted to almost five hundred thousand dollars and the corporation has paid no taxes. There is irony in this result when we refer to the statement in the House Committee's report of March 26, 1924, recommending passage of the bill creating the Inland Waterways Corporation. The report states:

"The Committee believes....that if this bill becomes a law the government can and will within the next five years demonstrate not only the practicability of water transportation, but the great advantage and economy to shippers, and the profitable results that will reward private capital invested in transportation facilities on our rivers. And when that time comes, it is the judgment of the Committee that the government can dispose of its properties to private capital to an advantage and withdraw entirely from such activities."

"It is the view of the majority of this Committee that the government should leave to private capital the responsibility of furnishing transportation facilities under proper regulation of the government. But it is also the view of the Committee that the government should itself encourage private capital to invest in transportation facilities by removing every obstacle, natural or artificial, which will make it impossible for private capital to invest in such facilities with a reasonable chance for profit."

"And further this interesting report states:

"After the enactment of this bill the Secretary of War can operate the barge lines in accordance with the same business principles that would be followed by a private transportation company. It is the opinion of the Committee that if they cannot then operate it successfully and at a fair profit, private capital could not do so, that further expenditure of government funds for the improvement of our inland waterways would be useless and should be stopped."

"If the government, after making these rivers navigable, cannot profitably operate a transportation system on them, then it is hopeless to expect private capital to do so, and Congress should no longer appropriate money from the public treasury for a useless purpose. Therefore, the Committee was of the opinion that this bill should pass in order that this pioneering demonstration might be conducted by the Secretary of War until such time as its success or failure may be made apparent."

Venture Into Socialism "Noble Experiment"

"Toward the end of the allotted five-year period suggested in the Committee's report, apparently the Ameri-

can five-year plan, and in spite of the poor showing exclusive of the necessity of paying taxes, Congress again yielded to the importunities of waterway advocates and passed the Denison Act in 1928, appropriating \$10,000,000 additional for the Inland Waterways Corporation, regardless of the fact that the corporation reported previously it had \$1,500,000 out of \$3,000,000 proceeds of stock sold to the federal government and \$2,000,000 authorized and unissued, left unspent. The "Barge Line Users Special Committee," constituting a public interest of about one-tenth thousandth of one per cent of the people of the United States, wanted the stock of the corporation increased from \$5,000,000 to \$50,000,000 for the purchase of more equipment and further extension of the barge service. The noble experiment was not big enough for them. The act also gave some power to the Interstate Commerce Commission over joint rates, rules, routes, etc., as well as requiring all water carriers to obtain certificates of necessity and convenience. The Commission at the crest of the waterways wave declined to hold hearings, contrary to the contention of the rail carriers, and promulgated on April 8, 1929, rules governing through routes and joint rates.

"In a recent article in the New York Times, General Ashburn said:

"We have hundreds of millions of dollars—nearly \$1,500,000,000—of navigable waterways, and we have been appropriating annually vast sums of money to continue making navigable streams in the hope that by their utilization there will result a cheaper means of transportation, whereby the whole country will profit. This vast project has been only partially completed, and it will require a comparatively small sum to complete that part of it which has been found to be in accordance with sound economics and sound engineering principles. Upon its completion we may look with certainty to the fact that through cheaper and better co-ordinated water-rail-motor service there will result a system of transportation better and cheaper than any single system, affording every one a real return upon the money he has invested in the form of taxes."

"It is a pity we have spent the vast sum named, and more, and are urged to spend further sums to make unnavigable streams navigable 'in the hope that by their utilization there will result a cheaper means of transportation whereby the whole country will profit.'"

Millions Spent With Grotesque Results

"What an illusory hope! There seems little likelihood of ever making any large part of the waterway investment pay. Millions have been spent to change St. Paul and other inland cities into great seaports with grotesque results. Several hundred tons of stone and gravel have been carried by barges on the upper Mississippi when the river was open, but the lower water rates, not costs, have all gone into the pockets of the local water-side transportation companies. So the subsidies paid by the taxpayers never reach the farmers and grain shippers at all, to say nothing of any return in benefits to the taxpayers of Colorado, Pennsylvania, California, New York, and other distant states, who never have had a chance to vote upon this scheme to make the Mississippi a great inland waterway.

Railway Employees Entitled to Consideration

"Organized railway labor is rapidly developing an earnest and far-reaching campaign against this futile and unfair competition of government subsidized transportation with carriers by rail. We do not believe that the appropriation of government funds in the interest of waterway transportation is justified under the conditions which exist in our country today, but if the opposite view prevails and we are to have waterway transportation, regardless of cost, or the needs of the country, then rail-

road owners and railroad employees should also be given some consideration. In such event, waterways should complement the railroads under their ownership and operation. The railroads constitute the main artery of America's commerce. In the past every effort has been made to operate them in the most economic and efficient manner and in the public interest. Technological changes that have been taking place in the industry for several years past, together with diversions of traffic into fields of unregulated transportation, have resulted in many thousands of railway employees being thrown out of employment. These employees are entitled to some consideration at the hands of the government if government funds are to be used to subsidize and further increase railroad competition. I believe the railroads, under regulation and with the proper spirit of co-operation shown toward their employees, should control and manage the co-ordination of public transportation facilities. Railway employees are interested in the establishment and maintenance of a fair labor policy in the industry; in the protection of their rights and interests in their homes and in their employment. We believe these are essential to the advancement of not only their own interests, but in the general welfare. If we must have waterway transportation, why not change Section 5 of the Interstate Commerce Act as amended by the Panama Canal Act of 1912, and thus eliminate the sweeping injunction against the railroads owning and operating water carriers, so that they will be able properly to protect their credit and labor from restrictions imposed by government authority. We believe the future prosperity of the railroads can best be assured through more liberal regulatory treatment."

Moulton Points to Hidden Waterway Costs

Dr. Moulton outlined briefly the results of his investigations, extending over twenty years, of American and European waterways, which investigations, he said, "demonstrate conclusively that when all items of cost are included in connection with waterways—the subsidies paid by the taxpayers as well as the freight rates paid by the shippers—the cost of transportation on inland canals and rivers is generally very much greater than it is by rail." While conceding that there are exceptions in the case of a few short canals such as the Soo, the Panama and the Suez, Dr. Moulton at the same time held that "The exception does not apply to the St. Lawrence, the Erie canal, or to projects on the Mississippi river and its tributaries." He continued in part as follows:

"The rates on railway traffic must cover out-of-pocket operating costs, the maintenance and upkeep of the railway, interest on bonds and dividends on stock, and also taxes which the government levies. In the cost figures usually presented for waterways, however, the rates quoted cover only the cost of moving goods over the water route, including interest or profits on the investment in the boat. All the overhead costs for maintenance and upkeep are borne by the government in addition to interest on the capital investment, which means by the taxpayers rather than by the shippers; and at the same time the waterways are not expected to contribute taxes for the support of government.

"The Board of Engineers for Rivers and Harbors of the War Department has recently stated the principle that should be applied in computing waterway costs in a way that should meet with general agreement, as follows:

"The primary measure of the economic value of any waterway system is the savings in transportation costs which it affords. Usually this saving is shown by comparing the water transportation cost with the rates for moving the same goods

between the same points by rail. Included in this cost of water transportation should be the charges for interest on capital investment in waterway improvements, plus annual cost of operation and maintenance.

"Unfortunately, this principle in the past has not been applied in appraising the economic value of waterway developments, either in this or other countries.

"On the Erie Barge Canal, the charge paid by the shipper amounts to about 4.50 mills per ton mile, while the state sustains a cost of 5.06 mills per ton mile for the operation, maintenance and repair of canals, and 9.85 mills in the form of interest on the capital investment. The total cost is thus 19.41 mills, which figure may be compared with a freight cost of 10.90 mills for the eastern group of railways. Most of the water traffic consists moreover, of low grade, bulky commodities, while the railway freight includes high grade tonnage as well. Out of this 10.90 mills per ton mile, at least half a mill was, moreover, paid to the government in taxes.

The Ohio Development

"Among the river projects, the one most commonly cited as being economically justified is the Ohio river development. In 1908 the Army Engineers estimated the cost of constructing a 9-foot channel at \$68,731,488. The expenditures to the end of 1929 actually amounted to \$103,630,145, while maintenance and operation costs had accumulated to the extent of about \$26,000,000. At the present time the annual costs which are borne by the taxpayer are over \$8,000,000, equivalent to 5.42 mills per ton mile of traffic carried. Most of the traffic is in the hands of private carriers who maintain boats and barges for their own plant operations, and about 90 per cent of the total consists of coal, sand, and gravel. The direct cost of shipping on the river may be conservatively put at about 4 mills, which makes the total cost 9.42 mills. Since the distance between Pittsburgh and Cairo is 50 per cent greater by water than by rail, for purposes of comparison with rail rates per ton mile it is necessary to add 50 per cent to the above figure, which would make a cost of 14.13 mills. This cost may be compared with an average freight rate of 6.20 mills on the Chesapeake & Ohio, 8.51 on the Louisville & Nashville, and 11.35 on the Monongahela—these rates covering high grade as well as low grade traffic.

Taxpayers Outlay Exceeds Rate Savings

"The government operated barge lines of the lower Mississippi are as yet (taken as a group) operated at a deficit. Even should the operating deficit disappear in due course, the overhead charges for interest on capital invested and for maintenance and upkeep, amounting to many millions of dollars annually, would still have to be borne by the taxpayers. As matters now stand, the taxpayers of the nation are contributing several dollars for every dollar that is saved the shippers.

"The United States needs badly at this juncture a national transportation policy—a policy conceived in terms of co-ordination of the several types of agencies, and the further development of transportation along lines of genuine economy to all the people."

General Ashburn's Address

Gen. Ashburn defended the government-improved waterways as a development upon the completion of which "we may look with certainty to the fact that through cheaper and better co-ordinated water-rail-motor service there will result a system of transportation better and cheaper than any single system, affording every one a real return upon the money which he has invested in the form of taxes." After proceeding next to sketch the

history of the government's waterway policy and to outline results of the Inland Waterway Corporation Operations, Gen. Ashburn listed and answered arguments against the completion of the system in the following manner:

"The arguments against completing the project of a main arterial system, with its ramifications extending outward from the main system in the order of their necessity, (and only when in accordance with sound engineering principles) run about as follows:

"1. That hundreds of millions of dollars have been spent to create navigable streams, in the vain hope that cheaper transportation would result from their utilization.

"Secretary of War, the late Mr. Good, has said:

"In computing the total expenditure of the government on the improvement of waterways, their cost can not be charged up as a loss, as they paid for themselves many times over during the earlier years. Our waterways plan was not built in a day. It was a matter of growth. This was so of necessity, for it would manifestly be a waste of public funds to undertake the improvement of all waterways at one time, regardless of the economic need. The only solution, therefore, was to build those parts of a waterway where the economic situation was such as to justify each section as it was built. However, we are now fast approaching the time when we can visualize the completion of the entire project and when the sums necessary for such completions can be provided without undue strain upon the Treasury."

"2. That there is no necessity for such development, as the railroads are amply able to care for our expanding commerce.

"While it is undoubtedly true that the railroads can amply take care of our expanding commerce, it will be at such a tremendous expenditure as to be stupendous.

"Between 1920 and '30 it was repeatedly stated by prominent railway executives that the cost to the railroads of keeping pace with our expanding commerce was approximately a billion dollars a year and railway expenditures between those years approximately kept pace with this estimate. In order to raise this revenue there has been a persistent urge for increased freight rates, and this urge, and its accomplishment to a certain extent, has brought about a most unbalanced and unequitable situation.

"The great central west, which we speak of generally as the Mississippi Valley, has been penalized to such an extent by these freight rates that it is decreasing in production, manufacturing, and population.

Loss to Railways Discounted

"3. The third general charge is that the utilization of our interior waterways will result in a loss of revenue to the railroads, to their vital injury. The utilization of our interior streams, as demonstrated by actual experience, does not result in a loss of revenue to the railroads, to their vital injury.

"There is a cycle of transportation leading to saturation. This saturation point is reached for any city when the cost of collecting the raw material and distributing the finished product is greater for that particular city than for some other location; and it will inevitably result, as many cities have reason to know, in the abandonment of particular manufactories in that city, and the establishment of the same manufactories in some other more suitably located community, where the transportation facilities are not saturated; and almost always the new point selected is a city on a navigable stream, the Lakes, the Gulf, or the seacoast.

"4. The fourth general inclusive charge that the waterways are subsidized, and that the Inland Waterways Corporation is in unfair competition with the rail-

roads, that the railroads are unduly restricted by regulations, and that they pay part of the water saving.

"The truth is, that waterways and railways, properly co-ordinated and co-operative, are indispensable to each other. It seems strange to me that the railways should be so bitterly opposed to interior waterways, when this form of transportation is the only form that gives them back more and better traffic than it takes away. There would be more sympathy for the railways in regard to restrictive legislation, if they themselves could agree whether they wanted these restrictions removed; or wanted to impose them on their competitors.

"The charge that in our joint rates with the railroads they are compelled to absorb 50 per cent of the saving by water is too ridiculous to answer. Our policy is, where there is a comparable route, all rail, to a comparable rail-water route, that the rail line performing its part of the rail water haul, should get as its proportion of the accruing revenue, precisely what it should get from its connecting rail carrier for the same service.

"Where there is no comparable route, we insist that each participating carrier shall get for its share of accruing revenue for joint service performed, a fair share bearing some real relation to the cost of the service performed.

"5. The charge that the railroads are being unjustly taxed to create a form of transportation calculated to hurt them has been heretofore answered by the Counsel for the Associated Industries of New York State in the following words:

"All property within the states is taxed, and the railroads are no exception to the general rule. The state not only has the right to tax property within its borders but it also has the right to spend the money so collected in the improvement of its highways, or for any other legitimate purpose. The suggestion that the state should not spend any tax money for the upkeep of the canal simply because some of the taxes are collected from the railroads is hardly to be taken seriously. By the same token the railroads might complain because some of the tax money is spent to build good roads. I might complain because some of my tax money goes to educate the children of my competitor. A street car company might complain because some tax money is spent to improve pavements over which taxicabs operate. Farmers might complain because some of their tax money is spent in the city. City dwellers might complain because some of their tax money is spent in aiding agriculture. And almost everybody might complain because Congress has directed that freight rates be made high enough to yield the railroads a fair return."

Denies Railway Labor Is Injured

"6. To the charge that thousands of railroad employees will be thrown out of business, if the waterways increase in their success, I challenge any railroad in the United States to quote one single instance where a freight train has been removed from its schedule on account of purely water competition.

"The answer to the charge that the Inland Waterways Corporation should cease to exist, lies in the law itself, which prescribes when and how it may get out of business. A reasonable compliance with this law will certainly expedite getting the government out of business, and if you still feel that the operation of our Federal Barge Lines is a menace to rail prosperity, I call upon you to advise your railway executives to comply willingly and sympathetically with the law, and help us all attain quickly what we desire, the retirement of the government from the transportation business."

Waterway Advocates Cloud Issue

Mr. Dunn called attention to the necessity of clarifying the issue and proceeded "to dispose of at least a few arguments advanced by waterway advocates which confuse the real issue and prevent it from being considered

by the public on its merits." The address of this speaker continued in part as follows:

"Secretary of War Hurley, Major-General Lytle Brown, Chief of Engineers of the Army, and others repeatedly have said that we have invested \$1,500,000,000 in waterways, and as a result are effecting transportation savings estimated at \$600,000,000 a year. Expenditures and savings claimed upon the Great Lakes and the ocean are included in these figures. As every student of transportation concedes that naturally the cost of transportation on the Great Lakes and the ocean is much less than by rail, the citation of these figures simply misleads the public regarding the development of rivers and canals, which is the real issue. It seems significant that those who cite these figures never give corresponding figures regarding expenditures and savings in transportation costs on rivers and canals alone.

Concealed Taxes Exceed Freight Charges

"General Ashburn, in a recent article, said that concealed in the price of everything the citizen buys is the cost of transportation. Quite true. But why did not the General add that there are also taxes concealed in the price of everything the citizen buys, which aggregate twice as much as railway freight earnings, and that we cannot spend a dollar upon the improvement of any waterway without increasing the amount of taxes concealed in prices?

"General Ashburn says we will have to invest only one-eighth as much as the \$1,500,000,000 already invested to complete and make useful our entire projected system of waterways. That would be \$187,500,000. The Board of Army Engineers, has estimated that it will cost \$124,000,000 merely to deepen the upper Mississippi river from six to nine feet. If General Ashburn means it is proposed to expend only the difference between these figures of \$63,500,000 on all our other inland waterways he should acquaint himself with the plans of waterway advocates, Congress and the United States War Department.

Army Engineers Know Master's Voice

"It is claimed that whatever mistakes may have been made in the past, we now have a new waterway policy under which no expenditures are made unless the Board of Army Engineers recommends them as economically justifiable. In the very last river and harbor bill, Congress adopted the upper Mississippi project, involving \$124,000,000, without its having first been recommended by the Board of Army Engineers. Of course, the board has since recommended it, but did you ever think that even an army engineer did not know his master's voice? The last river and harbor bill shows that our much vaunted new waterway policy is, like the old, a policy of log-rolling and pork barrels.

"It is claimed the development of waterways will help the railways by 'relieving' them of low rate, bulky commodities and leave them to enjoy the high profits assumed to be derived from handling high class commodities. Every student of transportation, except waterway advocates, knows that, because of their heavy loading per car, these bulky commodities are the most profitable traffic of most railways; and deprivation of their most profitable traffic is a form of relief from which the railways naturally beg to be excused.

Government Spokesmen Should Get Together

"The farmers are told by high government officials that the price received for their grain is the price at Liverpool less the freight rate and that, therefore, a reduction of rates by waterways development will increase the

price they receive for grain. The Farm Relief Board at the same time is telling the farmers that owing to worldwide conditions and disparities in costs of production here and abroad they must give up all hope of exporting grain. The government spokesmen of the Farm Relief Board and the government spokesmen of waterway development ought to get together.

"After listening to General Ashburn's address here to-night I realize that the General and I have differences of opinion. He seems to belong to that growing school of thought which includes many business men, and the members of which believe that every little subsidy has a meaning all its own, depending upon who gets it. There is not, in my opinion, a more dangerous tendency in this country than that of an increasing number of industries and classes of people to seek subsidies.

"It is sometimes said that waterways should be developed because of all the economic benefits that will be derived from them. I have directly challenged some of the leading waterway advocates of this country to cite—disregarding differences in the cost of transportation—one single economic advantage that can be derived from the development of waterways that has not been and cannot be derived from the development of railways, and have never received any definite answer. The real issue is as to difference in cost of transportation with due allowance for differences in the service rendered.

Extravagant Claims of Savings

"A short time ago I did find some large figures in a report of the Board of Engineers purporting to show the savings in transportation costs that have resulted from the improvement of the Ohio river system. These figures indicated a saving in 1926 of \$25,000,000 in transportation costs resulting from the moving of 2,649,000,000 tons one mile on the Ohio river system. When I divided the total saving claimed by the ton mileage given I found the saving claimed averaged 9.44 mills per ton-mile. The average revenue per ton-mile in the same year of the eight principal railways serving the same territory was only 8.83 mills. At that average those railways would have carried the entire traffic moved on the Ohio river system for less than \$23,400,000, or for about \$1,600,000 less than the saving in transportation costs claimed.

"In 1929 the average total cost of carrying a ton of freight 100 miles on the New York State Barge Canal was \$1.94, made up of 45 cents as the boatmen's actual charge for transportation (or the direct freight rate), and \$1.49 paid by the public in taxes for expenses of operating, maintaining and repairing the canal, and interest on the state's investment in it. As contrasted with this total cost of \$1.94 for carrying one ton of freight 100 miles on the canal, the eastern railroads would have performed the same service for an average charge of \$1.09, or for 43 per cent less than the total canal cost.

"The American public, which includes all of us, is being urged to invest a large amount of its capital in inland waterways to increase the prosperity of the nation, and not merely that of certain shippers, communities or territories. It ought not to invest it, or be asked to invest it, on the basis of information any less complete and convincing as to probable costs and savings than the in- were being asked to invest their own capital. And if the formation that would be demanded by business men who were being asked to invest their own capital. And if the public is ever made to realize how large are the subsidies it is being asked to pay in proportion to the reductions in freight rates it is likely to get, the projected expenditures upon inland waterways will rapidly become less popular."

No New Railroad Law

By Harold F. Lane*

WASHINGTON, D. C.

ANOTHER Congress has adjourned and the Transportation Act of 1920, with all its virtues and faults, is still intact. This is in spite of the efforts made by Senator Howell and Donald R. Richberg to emasculate the rate-making provisions of Section 15a by substituting an investment rate base for a valuation and those of Commissioner Eastman and the Interstate Commerce Commission not only to substitute a rate base for a valuation but above all to substitute the judgment of the commission for either and to allow the competition of other forms of transportation to take the place of recapture. It is also in spite of the endeavors of Senator Couzens to suspend the commission's powers relating to consolidation or unification, pending a reconsideration by Congress of the whole subject, and those of the commission and Chairman Parker of the House committee on interstate and foreign commerce to extend the regulation of railroad consolidations to include the regulation of who shall own or control more than one railroad. Incidentally the efforts of someone to take the acquisitive tendencies of the Van Sweringens and the Pennsylvania as an excuse for a wholesale investigation of holding companies, investment trusts or almost any kind of co-operative control of any kind of interstate commerce, also fell by the wayside.

Earlier in the Seventy-First Congress there had been an expectation of considerable activity, at least, in the direction of proposed railroad legislation, however, most of it has petered out in investigations conducted by the House and Senate committees vicariously through "special counsel" whose voluminous reports for some reason or other reached the committees rather too late to be considered before adjournment. These investigations or at least one of them, have furnished to those especially interested in transportation problems a lot of useful information, but it is somewhat doubtful if much of it got through to the members of Congress who needed it most. Some of it, when digested, may pave the way for action at some later session.

Although Congress is often criticized for inefficiency the methods adopted by both the House and the Senate committees on interstate commerce in this Congress resulted in the saving of a great deal of time for others as well as for the members of the committees. For example, it was thought at one time that there would probably be lengthy hearings on the Howell bill. Instead the committee adopted the plan of inviting written communications on the bill from the commission and other organizations representing those most interested in the matter. This resulted in a most interesting debate in the form of mimeographed statements between the commission, the Association of Railway Executives, the National Industrial Traffic League, the National Association of Railway and Utilities Commissioners, the National Conference on Valuation of American Railroads, and others. In the course of three reports submitted by Commissioner Eastman as chairman of the commission's legislative committee the Howell bill was completely redrafted and its government ownership feature lost sight of, all without disturbing the members of the Senate committee in the slightest degree.

Also, after Senator Couzens had failed in his efforts to suspend the consolidation powers of the commission,

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he succeeded in having the Senate order an investigation of the effect of railway consolidations, or unifications, because there have been no consolidations as yet under the transportation act. His special counsel spent several months collecting such extracts as might interest the Senator from the testimony of witnesses at earlier hearings and the result was laid before the committee and then made public after a special meeting of the committee called to consider it, at which the committee did consider a radio bill. Meanwhile, however, the Great Northern and Northern Pacific decided to give up for the present their efforts to bring about a unification, leaving those interested to wonder whether their action is to be credited to Senator Couzens and the railway labor organizations that got him aroused, or to the commission that had decided the two roads might not combine without first giving up the Burlington.

Similarly the House committee on interstate and foreign commerce managed to help sidetrack a complicated piece of legislation to which it had devoted some weeks of hearings at earlier sessions, designed to make more workable the consolidation provisions of the transportation act, which might have made unnecessary some of the things that have gone on outside the act. In this instance the committee probably did not intend to sidetrack the Parker bill, because it had done its work on it and had rendered a favorable report, although there was also a minority report which would have caused a fight had the bill been brought up for debate. It was understood that no effort was made to bring the bill up because the Senate was not ready for it and meanwhile the commission came along with its recommendation for possible legislation to curb the activities of holding companies and the consolidation bill was promptly forgotten. As long ago as its 1928 annual report the commission had expressed some concern because, while it was still thinking about a general consolidation plan, "certain individuals or groups of individuals" understood to reside at Cleveland, Ohio, had acquired control of "two or more" of some of the carriers which it was supposed to "allocate," and in its 1929 report it showed that the Alleghany Corporation and other Van Sweringen companies and the Pennroad Corporation were doing the same thing with certain roads which it was then just about to allocate to some one else and were thus interfering with "the orderly processes of a carefully planned scheme of public regulation." Commissioner Eastman testified before the House committee as to the principal facts on which it had based its recommendation and suggested that the committee consider whether there should not be a law about it. The committee was somewhat busy with something else so it got an appropriation of \$50,000 and hired an investigation made, which has now resulted in a 1,700-page report on who own the railroads, accompanied by much the same recommendation as Mr. Eastman had made in the first place, but minus his suggestion that holding companies perhaps ought to be regulated as to their security issues as well as their acquisitions.

The one specific recommendation for legislation, that the jurisdiction of the commission be extended to cover the acquisition of control of two or more railroads in such a way as to bring them within a common control, by holding company or otherwise, was promptly embodied in a bill of several pages introduced by Chairman Parker on February 21 and considered by the committee on February 26. The committee decided not to take any action on the matter at this session. It is understood that some of them wanted to read Dr. Splawn's report first to see what has happened as a result of the law passed eleven years ago, but that probably one of the

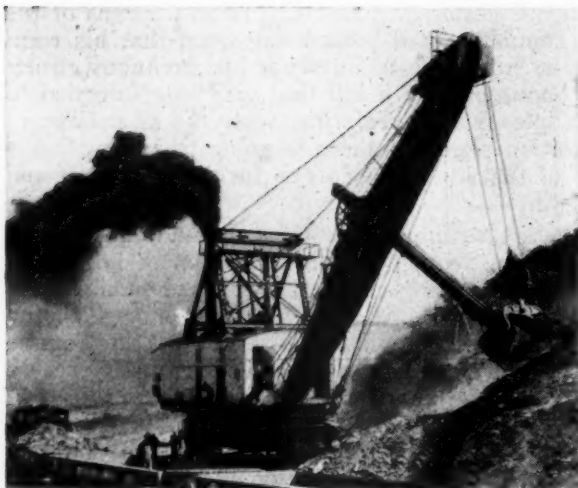
most potent reasons was that Chairman Couzens of the Senate committee had passed out word that his committee was not going to interrupt his strenuous efforts on the bonus bill for a bill that was only intended to keep people from interfering with the commission's consolidation plan. If there is going to be any interference of that kind he wants to furnish it himself and do it right.

There was also another recommendation in the Splawn report that the scope of the investigation be broadened to include all holding companies engaged in interstate commerce, to be co-ordinated with the one which the Federal Trade Commission has been conducting for the Senate for several years and on which it proposes to spend some three years more. Chairman Parker also introduced a resolution to authorize an expenditure of \$50,000 more for this purpose and had a committee meeting on it even before that on the bill. The committee voted 8 to 5 in favor of it but at a further hearing on February 25 before the House rules committee so much opposition was voiced because of the broadness of the scope that the rules committee decided not to report it. It is understood that Senator Couzens also let it be known that he did not propose to help this resolution through the Senate and it had been put in the form of a joint resolution, although the original holding company resolution had required only the action of the House. So, partly as the result of Senator Couzens' position, the Van Sweringen brothers and others are still free, except as they may be restrained by the hit-or-miss possibilities of the anti-trust laws, to acquire control of all the railroads they want to provided they hang them on a hickory limb and curb any ambitions to swim in consolidation waters.

Senator Couzens himself did his best to throw a monkey-wrench into the orderly processes of the carefully planned scheme of the consolidation provisions of the transportation act, in what might be called a \$5,000-speech in the Senate on February 26, utilizing the material assembled in the report of the Green investigation which had cost the Senate that amount as the basis for an attack on the proposed four-system plan. He objected strenuously because the four-system plan has not yet been submitted to the Interstate Commerce Commission, saying that "There is a definite plan under way to not open up the subject while Congress is in session. There seems to be a definitely established plan to prevent the details of this proposed 4-party consolidation being discussed in Congress. It now seems that the plan is to be delayed until there is no forum for public discussion of the question."

"Why not call a halt until some definite evidence is presented to Congress which will justify the placing of the transportation facilities of the country in a few hands?" "The time has come," he said, "when Congress must seriously reconsider the subject of railroad consolidations. The fact that Congress adopted the policy of railroad consolidations in the passage of the transportation act of 1920 is by no means conclusive that that policy is being carried out or that contemplated consolidations are in harmony with the transportation act or the public interest. Since the transportation act of 1920 there have been no consolidations or mergers particularly disturbing competitive conditions, but unless there is some action by Congress there is sufficient indication that such consolidations will take place. Therefore Congress should either reaffirm the policy set out in the transportation act, which did not contemplate consolidations of properous and powerful railroad sys-

(Continued on page 493)

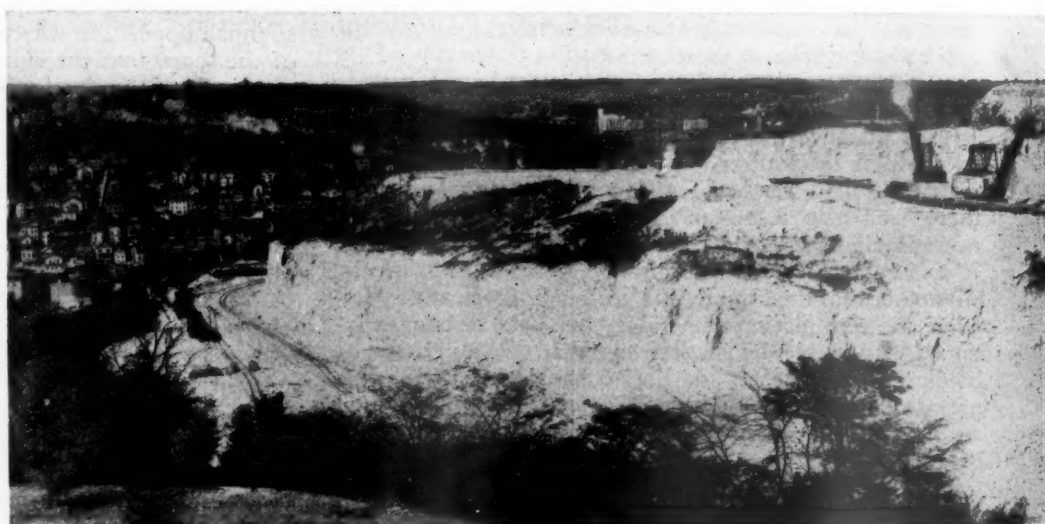


Eight-Yard
Shovel on
Bald Knob

Union Station Project Involves

Contractor employs three shovels
with eight-yard dippers to fill
site of new Cincinnati terminal

At the Right—A
View of Bald Knob
from the South-
west—Light Area
at the Extreme
Right is Part of the
Newly-Filled Area



RAILWAY terminal projects frequently entail great expenditures, the need for which is not easily visualized after the facilities have been completed. This is particularly true with respect to the Cincinnati Union Terminal project which involves the placing of six million cubic yards of fill, but because this great volume of material is being spread over so great an area, 240 acres, to a depth averaging only about 16 feet, the completed job will leave little to show what an enormous amount of grading was involved.

However, the fact that the completion date of the entire project is contingent largely on the progress made in the grading, which has been scheduled at an average of about 10,000 cu. yd. per day, and that more than one-sixth of the total yardage is to be hauled 16 miles and the remaining five million yards must be moved a maximum distance of $3\frac{1}{2}$ miles, is evidence enough of the scope of the task involved. To meet this schedule, the contractor is employing shovels of the type used in mine-stripping operations with dippers of eight cubic yards capacity, as well as several smaller machines, seven 80-ton locomotives and three smaller ones, 122 air-dump cars of 30 cu. yd. capacity, in addition to spreaders, track shifters, etc. The plant includes also 50,000 ft. of track, most of which is laid with 85-lb. relayer rail on ties that are fully tie plated, and the equivalent of a complete engine terminal.

General Shifting of Facilities

The project entails much more than the excavation, delivery and placing of the six million cubic yards of fill, because much of the terminal site was already occupied by railway facilities that could not be abandoned until equivalent or enlarged facilities were provided in other locations. As a consequence, the project also involved a carefully scheduled program for the completion

of the filling of designated areas in a specified sequence that did not conform in all cases to the most convenient plan from the standpoint of the grading procedure.

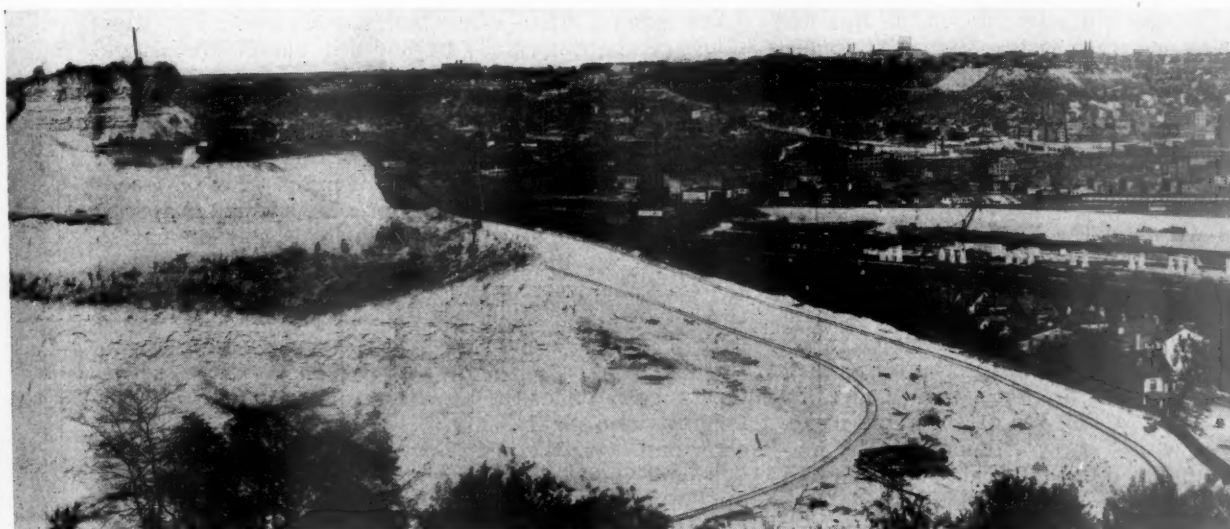
The site selected for the new Cincinnati Union station is in the valley of Mill creek. The area embraced in the construction operations covers a distance of $2\frac{1}{2}$ miles extending northward from the Ohio river, and for more than half of this distance has a width of 1,500 ft. While much of this area was either unoccupied or occupied by improvements of a low order, considerable portions of it were being utilized as railway terminals, particularly the area chosen as the site for the passenger station and the station tracks, which was occupied by a classification yard of the Cincinnati, New Orleans & Texas Pacific (Southern). To release this site, it was necessary to find a new location for the Southern classification yard further to the west on a strip of ground that was cut in two, lengthwise, by the main line of the Chesapeake & Ohio of Indiana. Therefore, this shift also gave rise to a shift of the C. & O. tracks, which were moved further west to a location adjacent to the Baltimore & Ohio property bordering the west side of the terminal area.

Other changes included a shortening of the Southern's "loop" so that it could be placed entirely south of Gest street, and the construction of a number of new freight stations to take the place of freight houses that occupied needed ground. In addition, it was necessary to vacate a number of streets or parts of streets, build bridges to

Six-Million-Yard Grading Job

was due to the fact that the main line of the Chesapeake & Ohio of Indiana skirts the side of this hill at a considerable elevation which was attained in part by means of a long trestle approach that crosses over two lines of the Baltimore & Ohio and adjacent streets. In other words, use of the C. & O. line for train haul permitted access to the terminal area without grade crossings. Invitations to bidders suggested the use of this and other borrow pits and the successful bidder chose Bald Knob as the borrow pit for the great bulk of the yardage.

Bald Knob was attractive as a borrow pit for a number of reasons. Foremost among them is the fact that an ample area of relatively level ground was available on a bench against the north side of the hill adjacent to the C. & O. tracks for the development of an assembling, dispatching and maintenance yard for the contractor's equipment. Another is the conformation of the hill as an isolated peak with slopes that afforded support for



Thirty-Yard
Dump Cars
Were Used

carry the tracks over Eighth street and Gest street, remove a viaduct at Liberty street, and construct a new "Western Hills" viaduct to take the place of the Harrison avenue viaduct and permit the vacation of Harrison avenue and Queen City avenue where they cross the terminal area at grade.

Station Tracks Above High Water

Most of the terminal area was low bottom land although, where occupied by railway terminals, it had been filled to some extent. However, even these portions were subject to overflow during high water in the Ohio river. In preparing plans for the improvement, it was decided to fill the area at the station site so that the station tracks would be at Elevation 512, which is higher than any recorded flood stage of the river, and place other tracks not lower than Elevation 495 ft. The lowest spot in the area subject to grading was at Elevation 450 and, except for a few dump piles, no portion of the area required excavation.

Early consideration was given to the problem of available sources of filling material, and in the course of negotiations for the land on which the terminal is being built, an option was secured from the owners of Bald Knob, which is the local name for an isolated peak in the wall of bluffs bordering the west side of the Mill Creek valley, and a particularly favorable location for a borrow pit because of its relatively close proximity to the terminal site and because of its accessibility. This



an approach line from the C. & O. yard as a continuous spiral that was advanced up and around the hill on a three per cent grade in a counter-clock-wise direction for fully 540 deg. of central angle, and a track distance of 7,000 ft.

Must Use Explosives

The material is heavy clay and shale with thin strata of rock, and must be broken up with explosives for excavation even by the heavy machines being used. However, it makes excellent filling material for general use although it was advisable to obtain material from another source for special use, as will be explained later.

The first step in the operation was to employ Model

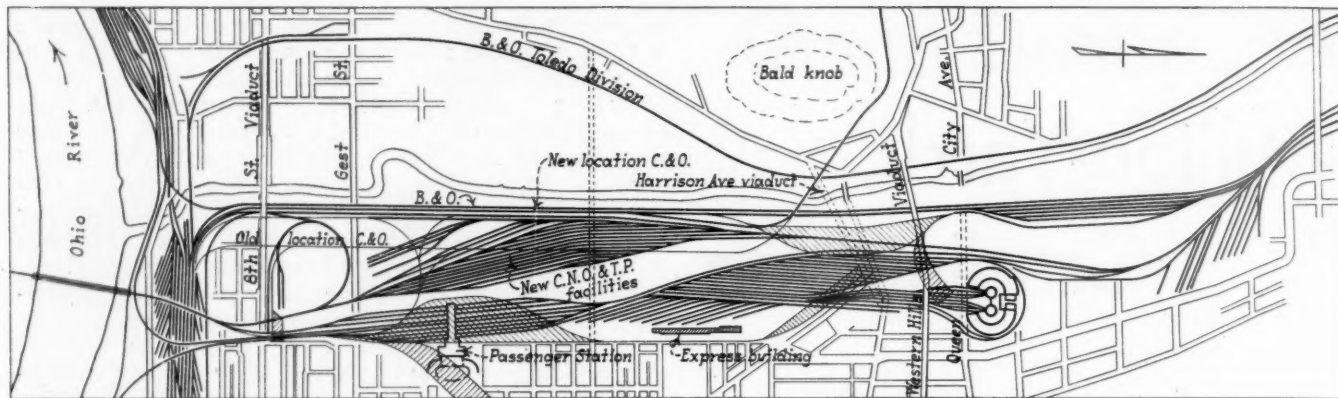


Diagram Map of the Terminal, Showing New Facilities in Heavy Lines—Shaded Areas Indicate Facilities that Had to Be Removed

37 Marion caterpillar-type shovels to prepare a side-hill roadbed for a loading track along the spiral location determined upon. As the work was advanced, this was supplemented by a second track so as to permit of double-track operation between the excavating operation and the supporting yard. Because of the weight of the equipment used on this project and the large tonnage to be handled, these tracks were constructed and are being maintained to a much higher standard than is usual practice for grading trackage.

As soon as the work on the loading track had advanced sufficiently, one of the large excavating machines was cut in and excavation was started at the grade of the loading track but continued in such a manner that the shovels generally worked at an elevation about 45 ft. below the loading track to secure the most effective results. One of the machines is a Model 350 Marion and the other a Model 300 of the same make, both being equipped with 8-cu. yd. dippers. The machines excavate a cut that is 100 ft. wide at the bottom and 175 ft. wide at the top when working at a depth of 45 ft. They have a reach of 90 ft. for loading and have worked against a face as much as 135 ft. high.

Transportation Plan

For blasting, No. 29 Armstrong electric well drills are employed to sink holes $5\frac{1}{2}$ in. in diameter, spaced 20 ft. center to center in a line located 20 ft. back from the face of the cut. These are loaded with an average of 1,200 lbs. of 30 per cent gelatin in the form of $4\frac{1}{2}$ in. sticks. In some cases use has been made of a bulk explosive similar to black powder. Explosive is delivered from the contractor's supply yard to the top of the hill by cableway.

The material is loaded in 30-yd. Western air-dump cars, handled in trains of 6 to 9 cars each, the average being about 8 cars. When both shovels are in operation, four trains are normally employed in handling loads and empties to and from a six-track yard with a capacity of 96 cars which the contractor provided adjacent to the C. & O. tracks. There were two reasons for providing this yard, namely to permit the making up of trains of 18 to 22 cars each for the haul over the C. & O. tracks into the terminal area, and to provide adequate capacity to serve as a hold yard for both loads and empties so that work on Bald Knob would not be interrupted in the event of delay in the movement of the contractor's trains over the C. & O. The grading trains are handled over the C. & O. by crews in the employ of the contractor, who have been examined on operating rules. Operation is under the protection of a manual block extending from Bald Knob to the point where the trains enter and leave the main line in the yard.

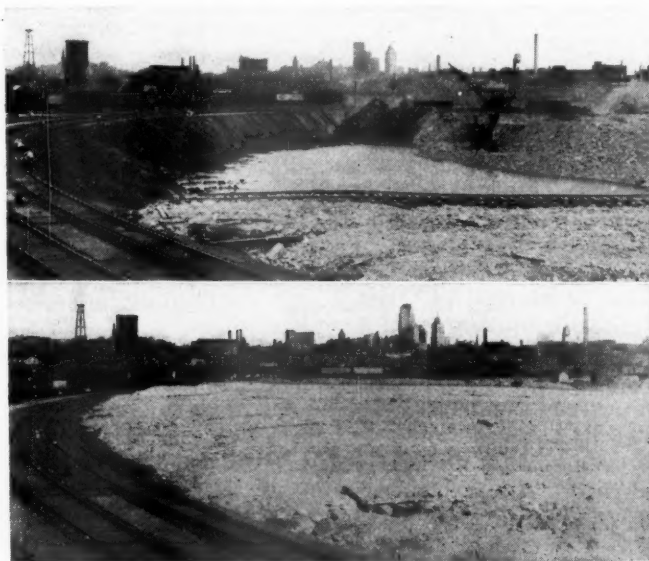
In addition to the operations on Bald Knob, the terms of the contract required the contractor to excavate 1,189,000 cu. yd. of selected filling material, sand and gravel, from a borrow pit located on the Chesapeake & Ohio of Indiana at a point about sixteen miles from the terminal. This material was required for use in locations where it was desired to have a minimum of settlement, namely on the station site and at the location of the engine-terminal and coach-yard buildings. In addition, arrangements were made to separate and store about 60,000 cu. yd. of stripping (soil) from this pit to be used as a top dressing for park development of the plaza east of the station building. Material from the "Sixteen-Mile" borrow pit is excavated by a shovel of the same type as those used at Bald Knob and is hauled to the



The Classification Yard of the Southern as it Appeared Before It Was Removed—Newly-Filled Area on the Left, Bald Knob in the Left Background

terminal in trains of 18 cars. Truck haul was resorted to in the handling of about 60,000 cu. yd. for delivery to small, isolated areas that could not be reached readily by train haul.

The grading schedule is a complex one for reasons previously given and no attempt will be made to outline it in detail here. In brief, the principal features of the plan are as follows: The first objective was to prepare the site for the new Southern classification yard, which required the shifting of the C. & O. main tracks to the west adjacent to the B. & O. main tracks, the replacing of the Southern loop by a considerably smaller one located entirely south of Gest street and certain minor changes. The principal grading called for in this stage was the filling of the area between the old and new locations of the C. & O. main lines. After these track changes had been made, the remainder of the area for the Southern yard was filled and work was started also on the area to be used for the coach yard. Track laying and surfacing closely followed the grading of the Southern yard so as to permit the release of the old yard for the grading on the station site. This was done about the first of the year and as a consequence, there are now no obstacles to the completion of the remaining grading except in the area north of the Harrison Avenue viaduct, as there, the embankment grade is too high to afford operating headroom under the viaduct. Consequently,



Before and After Filling One of the Deepest Holes in the Terminal Area

this portion of the work cannot be carried on expeditiously until the completion of the Western Hills viaduct will permit the razing of the old viaduct.

Some Filling Trestle Used

Most of the filling material was dumped from the cars on tracks at grade, following the usual practice of spreading and throwing. A total of 6,330 lin. ft. of filling trestle was utilized in 10 different locations, thus indicating that it was possible to avoid the use of trestles for by far the greater part of the work. In two cases, the use of a trestle was avoided by casting up the material with a clamshell bucket. For most of the work, the cars are handled for dumping by an engine and crew independent of the train crew that delivers the cars to the terminal area. The unloading crew picks up the loads in cuts of whatever length is most convenient and also operates the spreader. The contractor employs

three Nordberg track shifters in throwing and raising tracks.

The contractor, Winston Brothers Company, Minneapolis, Minn., is employing an average of 300 men on the work in two 10-hr. shifts with time out for lunch. The contractor's plant includes a complete camp, a 300-ton locomotive coaling station, a 20,000-gal. water tank and an equipment repair shop, as well as a high-pressure pumping plant to deliver water to shovels on the hill. Operations consume about 100 tons of coal per day.

The Terminal work is being directed by Col. Henry M. Waite, chief engineer of the Cincinnati Union Terminal Company, and construction is being supervised by G. P. Stowitts, engineer of construction. J. M. Belknap is field engineer and R. J. Bear and G. H. Wells are resident engineers.

No New Railroad Law

(Continued from page 489)

tems, or it should affirmatively say that it does approve of prosperous and powerful railroad system consolidations. It now appears that the transportation act, which was obviously adopted for the purpose of taking care of the weak and short lines, is proposed to be used for the purpose of consolidating prosperous and powerful railroad systems." Later, however, he referred to the policy as one by which strong and weak lines would be combined into "systems of equal strength," although he thought there was no intimation in it that any strong roads should be permitted to make themselves stronger.

Senator Couzens also took the position that the proposed four-system plan represents an effort to obtain the approval of the commission for transactions which it had previously disapproved, in anti-trust proceedings or in its decisions on the various Van Sweringen unification applications, or which have been accomplished "behind its back."

Why a detailed investigation by Congress on the subject of holding companies," he asked, "if their operations are to be given executive approval, and a legislative body—the Interstate Commerce Commission—practically commanded to approve operations which, if they had been proper, it would seem would have been brought before the commission in the first place?"

Chairman Parker said on February 26 that while it seemed impracticable to proceed further with his bill at this session there would probably be important legislation to revise the transportation act in the Seventy-Second Congress and also that his resolution would be brought forward again. The general opinion, however, is that the next Congress is going to be so nearly deadlocked as to make it very difficult to put through much complicated legislation.

Senator Couzens on March 2 submitted to the Senate a resolution authorizing the continuance through the Seventy-Second Congress of the investigation of unifications which his committee has been making through its special counsel W. C. Green, but the resolution was not acted upon so both this investigation and that being conducted for the House committee by Dr. Splawn are at an end.

By way of keeping the subject alive, however, Senator Couzens introduced just before adjournment a complete bill for the regulation of consolidations and unifications, prepared by Mr. Green and carrying out the

(Continued on page 508)

A New Era for the Railroads

Two roads alone pay taxes annually exceeding cost to
government of fifteen states—Security Owners
"had better stand and fight"

Part III*

It is interesting to note that the taxes paid for the year 1929 by the Atchison and Union Pacific Railroads alone exceeded the cost of the land to the government, which now comprises the greater part of fifteen states of the Union. The government sowed a desert, it reaped an empire.

Mr. Smith says:

"Had the legislators at that time known the potentiality that was throbbing in the heart of that little crude thing, the first thing to apply time to locomotion, the history of this country might have been different."

It is probable that had the Interstate Commerce Commission been created thirty years earlier, the great railroad building era of the nineteenth century would never have taken place. The pioneer and the bureaucrat cannot travel the same road.

The trust-busting campaign of President Roosevelt is well remembered and culminated in the 1907 panic, and as stated in the "Commercial and Financial Chronicle" of 1909, confidence was not restored until important decisions of the Supreme Court established the *inviolability of private property*. But this did not settle the matter, for the attack upon the railroads continued, taking the form of an attempt to have the Interstate Commerce Commission take precedence over the Supreme Court as expressed in the "Chronicle" April 13, 1912:

"The Interstate Commerce Commission is becoming increasingly restive under the corrective action of the courts. Throughout the whole of its more recent history it has found itself in continual conflict with the country's judicial tribunals. In its grasp for more power, and still more, it has so often exceeded its authority and so constantly revealed prejudice—making no attempt to disguise its desire to take the side of the shippers as against the railroads instead of doing exact justice between the two—that the courts have found themselves obliged again and again to overrule the orders of the Commission. The Commission never took kindly to the rebukes that were being administered to it and in every annual report made complaint to Congress and asked that its powers and functions be extended, so as to relieve it, as far as possible, from the intervention of the courts, since these latter showed slavish adherence to Constitutional mandates and insisted on the protection of the carriers against oppression and injustice."

And to illustrate this point, the "Chronicle" quotes from an address of Charles A. Prouty, Chairman of the Commission, at the annual dinner of the Traffic Club of Pittsburgh on March 28, 1912:

"In the past the courts have persisted in invading the legislative domain, but this will not, I think, be permanently permitted. There can be no intelligent review of a legislative act by judicial process. There can be no effective regulation of railway rates so long as the administrative acts of the regulating body can be reviewed by the courts. Ultimately the legislature will be left supreme in that domain where the exercise of legislative judgment is required."

"This means that the court can stand between the railway and confiscation, but that it will not be allowed to determine how profitable the railway investment shall be, for that is not the business of a court. In all that vast realm covered by the word reasonable, within that zone bounded by confiscation on one side and a reasonable rate on the other, the legislature will dominate. If it becomes clearly apparent that in its present form our Constitution lends itself to injustice and prevents the accomplishment of the right, then it will in due time be changed. I have for a long time thought that the outcome of all this conflict between legislature and court was likely to be an amendment to our Constitution depriving the court of all power to set aside a legislative en-

* This installment concludes the analysis of the railroad problems by Horatio L. Whitridge of the stock exchange firm of J. S. Wilson, Jr. & Co., other installments having appeared in the two preceding issues of *Railway Age*. In them Mr. Whitridge outlined the earnings trends of the railroads, discussed dispassionately and thoroughly the significance of competing transport methods and began an analysis of land grants which he continues herein. Complete copies of this study, in pamphlet form, are available from J. S. Wilson, Jr. & Co., Calvert Building, Baltimore.—EDITOR.

actment dealing with private monopoly. Our courts do not today possess the confidence of the masses, as is evidenced by the favor with which this demand for the recall of judges and the decisions of judges meets whenever it is put to the test of a popular vote. The reason for this is to be found very largely in the disposition of judges, especially of Federal judges, to invade the legislative domain and restrain legislative action. In no other civilized land, so far as I know, do courts possess the power to set aside the deliberate act of the legislature and unless they exercise that power with extreme caution in this land of ours they will be deprived of it.

"I have no patience with the idea so persistently urged in certain quarters that no man has any just regard for the rights of property unless he be a judge; that the putting on of a gown, like the anointing of the prophets of old, endows him with some special spirit of fairness."

"I am not saying to you that the average railway dividend of the future will equal the rate of commercial discount. I doubt if it does or should. I am not suggesting for a moment that the income from railway investment will compare with that in manufactures or in commerce, for it ought not to. You should not compare the net proceeds of railways with the proceeds of banks, for example, for the order of the investment is not the same. In the last fifteen years few forms of investment have surpassed banking, but I will remember the time when many of us who owned bank stocks not only lost our entire stock holdings, but were forced to pay assessments of an equal amount. The worst which could happen to the stockholder of any great railway system would be the temporary suspension of dividends, and even this could only occur under very unusual circumstances." (Italics added).

Assuming Commissioner Prouty's statement reflected the attitude of the rest of the Interstate Commerce Commission in 1912, it is not surprising that only three years later twelve railroads, operating over 20,000 miles, and having outstanding \$1,070,000,000 of bonds and stocks, were placed in receivership. Fortunately the corresponding figures for 1929 were three roads, with a mileage of 634, and bonds and stocks outstanding of only \$30,981,000.

Whether the history of 1915 is to be repeated in years to come rests largely in the lap of the present Interstate Commerce Commission. It is strange that men in public office so seldom realize that in this fast-moving country there is risk in all business, whether it be insurance, banking or transportation, and if an industry that is under Government control be allowed to earn only a meagre return during years of prosperity so that no surplus can be piled up, the next cycle of depression is sure to spell disaster.

Purpose of the Transportation Act of 1920 and Recapture Clause and the Significance of the 44th Annual Report of the Interstate Commerce Commission December 1, 1930

January 1, 1918, the United States Railroad Administration, as a war measure, took over all the railroads of the country for operation as one system. When the railroads were returned to private ownership, March 1, 1920, the employee morale was disrupted, the physical condition of the railroads depreciated and their credit impaired. As a result, the country was faced with the necessity of taking a major step for the rehabilitation of the carriers, and as a result, simultaneously with the return of the railroads there was created by Congress the Transportation Act of 1920.

Speaking of this Act at the time, James Speyer, of Speyer & Company, said, among other things:

"I consider the new law as the most constructive

measure affecting our railroads enacted during the last twenty or twenty-five years. * * *

"Unless the law is fairly and liberally construed, and is used to rehabilitate the credit of the railroads, and to strengthen the confidence of our people in their railroad investments it will prove a failure * * *

"One thing, however, seems perfectly clear: It is utterly futile to think and talk of the United States assuming and keeping the financial and moral leadership of the world, if we cannot manage our own affairs honestly and fearlessly in such a way as to protect the investments and savings of our own citizens in our own home securities."

The principal features of the Transportation Act were:

1. Provision for arbitration of labor disputes.
2. Preparation of a plan for the consolidation of the railways' properties of the Continental United States into a limited number of systems.

3. A rate structure designed to enable the railroads as a whole to meet their financial problems caused by the war and Government operation and to assist them in future financing by providing for a reasonable return on their investment.

4. Recapture Clause (Section 15-a) which provided that if under uniform rates any road, because of its favorable location or better management, earned more than the prescribed return, one-half of such excess should be returned to the Government to be used by it as a revolving fund and loaned to weaker roads on good security at 6 per cent.

A fair return on the property investment was fixed at 6 per cent for two years. Subsequently, the Commission ruled:

"That on and after March 1, 1922, a fair return on the aggregate value of the railway property of the carriers, defined in Section 15-a of the Interstate Commerce Act, determined as therein provided, will be $5\frac{3}{4}$ per cent of such aggregate property value as a uniform percentage for all rate groups or territories designated by this Commission."

The value of the railroad property on which this rate was to produce a fair return had been tentatively fixed by the Commission as of July, 1920, at \$18,900,000,000, as against a book value on the railroads' balance sheets of \$20,040,000,000.

It is striking that these two sets of valuations as of 1920 showed a difference of only approximately $5\frac{1}{2}$ per cent, and when these figures are brought down to the end of 1929, by adding capital expenditures made since 1920, this difference is only about 4 per cent.

Thus, after seventeen years of laborious valuation work and the expenditure of \$120,000,000 on the part of the railroads and \$35,000,000 of the taxpayers' money, there is revealed a difference of only about 4 per cent between the railroad and Interstate Commerce Commission figures.

The Railroad Valuation Bill caused the mountain to labor—it brought forth a mouse.

And even this infinitesimal amount of "water" the Commission is having difficulty in substantiating, because in the test case that was made of the St. Louis and O'Fallon Railway in fixing the valuation of this property for rate-making purposes, and the consequent figure at which the application of the Recapture Clause was to apply, the Supreme Court, in its decision handed down May 20, 1929, held that the Commission had failed to give effective weight to the consideration of "present reproduction costs" in estimating the value of the carrier's property, and that the Commission had "disregarded the approved rule and has thereby failed to discharge the definite duty imposed by Congress."

Most interesting developments have taken place in connection with the *rate of return on capital invested*.

The Transportation Act of 1920 was intended to make it possible to attract capital into the railroad industry, not only to maintain the existing plant, but to provide for the future growth of the country, yet by fixing a rate of $5\frac{3}{4}$ per cent as a maximum before the Recapture Clause became applicable, capital is put in the position where it takes the full loss in case of failure, and in the case of success it is penalized and its return may be less than that obtainable in other forms of comparable investment.

The following appears in a decision of the Supreme Court in the case of Bluefield Co. vs. Public Service Commission:

"What annual rate will constitute just compensation depends upon many circumstances and must be determined by the exercise of a fair and enlightened judgment, having regard to all relevant facts. A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties." (Italics added.)

The railroad business, Commissioner Prouty notwithstanding, is not free from risk, which statement can be substantiated by the tabulation of the railroad receiver-ships over the last thirty years as compiled by Moody's Investment Service.

In the Transportation Act itself it is provided that money received by the government through the Recapture Clause shall be loaned to weaker roads at 6 per cent on good security. In other words, the government thought it proper that it should receive as interest a percentage greater than the fair return it fixed for capital invested in the railroad industry as a whole.

The difficulty of carrying out this part of the act is given by the Interstate Commerce Commission as one of the reasons for its recommendation that the Recapture Clause should be repealed.

As a part of its duties under the Act of 1920 the Interstate Commerce Commission is charged with the duty of supervising the issuance of securities and fixing the price at which these securities must be sold by the railroads. Under this authority there were sold from June, 1920, to December 31, 1929, \$2,705,894,800 of railroad bonds. Below is given the average cost of this financing to the railroads by years, and side by side is placed a table showing the per cent of return of net railway operating income on the total reported property investment of all railroads, excluding switching and terminal companies:

	Cost to Railroads on Bond Sales	Return on Property Investment
1920	7.50%	.06%
1921	7.25%	2.95%
1922	5.94%	3.73%
1923	5.51%	4.56%
1924	5.61%	4.43%
1925	5.62%	4.89%
1926	5.28%	5.14%
1927	5.10%	4.40%
1928	4.73%	4.75%
1929	5.20%	4.96%
Average	5.77%	3.99%

It is striking that during this nine years seven months period the Interstate Commerce Commission fixed a rate structure that in only one year produced a return equal to the rate that the Interstate Commerce Commission itself was authorizing the railroads to pay for money borrowed from the public. In this connection the decision of the Supreme Court, January 25, 1930, in the case of the Public Service Commission of Maryland vs. United Railways and Electric Company of Baltimore contains the following most important statement:

"It is manifest that just compensation for a utility, requiring for efficient public service skillful and prudent management as well as use of the plant,

and whose rates are subject to public regulation, is more than current interest on more investment. Sound business management requires that after paying an expenses of operation, setting aside the necessary sums for depreciation, payment of interest and reasonable dividends, there should still remain something to be passed to the surplus account; and a rate of return which does not admit of that being done is not sufficient to assure confidence in the financial soundness of the utility to maintain its credit and enable it to raise money necessary for the proper discharge of its public duties. In this view of the matter, a return of 6.26 per cent. is clearly inadequate. In the light of recent decisions of this Court and other Federal decisions, it is not certain that rates securing a return of 7½ per cent, or even 8 per cent on the value of the property would not be necessary to avoid confiscation."

The following statement also appears:

"Investigators take into account the result of past operations, especially in recent years when determining the terms upon which they will invest in such an understanding. Low, uncertain or irregular income makes for low prices for the securities of the utility and higher rates of interest to be demanded by investors."

Here is a clear recognition of the fact so often overlooked by legislators and commissioners that capital cannot be coerced and will flow only into those channels to which it is attracted by both safety and return, and capital will have a voice in what that rate of return shall be.

And the decision contains also the following:

"The fundamental principle to be observed is that the property of a public utility, although devoted to the public service and impressed with a public interest is still private property; and neither the corpus of that property nor the use thereof constitutionally can be taken for a compulsory price which falls below the measure of just compensation. One is confiscation no less than the other."

Perhaps it was the reaffirming of this fundamental principle as laid down in the Constitution of the United States, "Nor shall private property be taken for public use without just compensation," that caused the Interstate Commerce Commission in its report of December 1, 1930, to make the illuminating statement:

"Not only is such procedure very expensive to the Government and to the carriers, whose funds are derived from the public, but it also involves, we fear, other dangers to the public interest. To state the matter baldly and frankly, litigation over questions of valuation, accounting and administration will arise in cases where the basic issue is whether or not, or to what extent, money shall be taken from carriers by the Government and possibly, in some instances, under financially embarrassing conditions. The unconscious influence of the surrounding circumstances is not unlikely to be such that the result will be to establish, in the course of this litigation, certain principles relative to valuation and the like which will have an unfavorable reaction on many broader phases of public regulation."

"We are inclined to the opinion that these practical objections outweigh the theoretical advantages of recapture, and that the wiser course to pursue is to repeal the recapture provisions in their entirety, rather than attempt to improve them by amendment. Certainly, this is a matter which is deserving of the most careful consideration by the Congress."

"One difficulty with repeal is that the question will not stop there. From the beginning recapture has been linked in thought and theory with the other provisions of section 15-a. This interconnection was emphasized by the Supreme Court. If the recapture provisions are repealed, the question will inevitably arise whether all of section 15-a ought not be repealed, or at least superseded by some different statutory provision having a like fundamental purpose. Various suggestions along these lines have already emanated from responsible sources. This far-reaching question the Congress must also consider" (Italics added.)

And so in reviewing the events from the passage of the Transportation Act of 1920 to the "44th Annual Report of the Interstate Commerce Commission" it is possible to read between the lines of this report the recognition on the part of the Interstate Commerce Commission that the railroads hold no monopoly on transportation, the admission that the railroads' property is more valuable than was at first supposed, that the railroads' capitalization is less than their property value, that the rate structure is not adequate even in prosperous years to give a fair return, and finally, the inviolability of private capital.

There is no more conscientious, able and hard-working body of public servants than the Interstate Commerce Commission. They have guarded the railroads from their own mistakes, they have elevated the standard of railroad ethics, they have killed the old attitude of "the public be damned." Where they have fallen short of the possibilities of their great task it was because the very size and infinite details involved have dimmed their perspective. It has taken time to shake off the belief inherited from their predecessors that the railroad represented a dangerous monopoly. Thus, it

* Italics added.

was difficult to interpret the law fairly and at the same time liberally.

They may at times have failed in the exercise of a fair, enlightened and independent judgment as to both law and facts, and in their position of guardians of a trust fund, dedicated to the service of the public, they have not always recognized the obligation to protect the corpus of the estate.

This is not the time for institutions, estates and individuals to sell the stocks and bonds of the great American trunk lines, for if the laws of this country and the wisdom of the legislators and commissioners "do not protect the investments and savings of our own citizens in our own home securities," then the same adverse elements will sooner or later make their appearance to the detriment of other forms of investment. Rather than jump from the "frying pan into the fire" railroad security holders had better stand and fight.

If, on the other hand, the "44th Annual Report" holds promise of a more liberal and enlightened attitude on the part of the Interstate Commerce Commission towards the railroads, the restoration of confidence in the business structure of this country need not wait upon additional legislation.

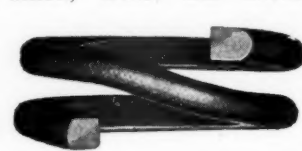
President Hoover announced December 30 that the Baltimore and Ohio, Pennsylvania, New York Central and Nickel Plate had agreed upon a consolidation plan for the formation of four Eastern Trunk Line Systems, and that this plan would be submitted to the Interstate Commerce Commission for its approval. This announcement included the following statement:

"These negotiations have been in progress for some weeks, and were undertaken at my suggestion in the hope of effecting the consolidation policies declared by Congress in 1920 and especially at this time as a contribution to the recovery of business by enlarging opportunity for employment and by increasing the financial stability of all the railways, and particularly some of the weaker roads."

The year 1931 may mark the beginning of a new era for an old industry.

Spring Washers Prolong Life of Ties

THE vibratory action caused by the wheels passing over rails creates a movement in the tie plates which eventually causes the tie plate to shimmy and imbed itself in the tie. In order to minimize or eliminate this movement, the Reliance Manufacturing Company, Massillon, Ohio has developed the Hy-Chrome double



The Hy-Chrome Double-Coil Thackeray Spring Washer

coil Thackeray spring washer, which has been adopted as standard by several railroads in connection with the application of tie plates held by screw spikes, and is in experimental use on at least a dozen other railroads.

This appliance, while simple in appearance, has an automatic compensating action through its reactive abilities to function as a holding member. Its efficiency is developed through the special alloy steel from which it is made, combined with the exacting heat treatment methods used in its production, and its special design. Its acceptance by the railroad engineers interested in overcoming this construction problem was preceded by considerable laboratory and field experimental work.

Pointers on Railway Lumber and Tie Buying *

Kiln drying and change in car lumber thickness among suggestions for savings in large field of expense—Northern Pacific methods described

By Paul McKay

Assistant Purchasing Agent, Northern Pacific,
Seattle, Wash.

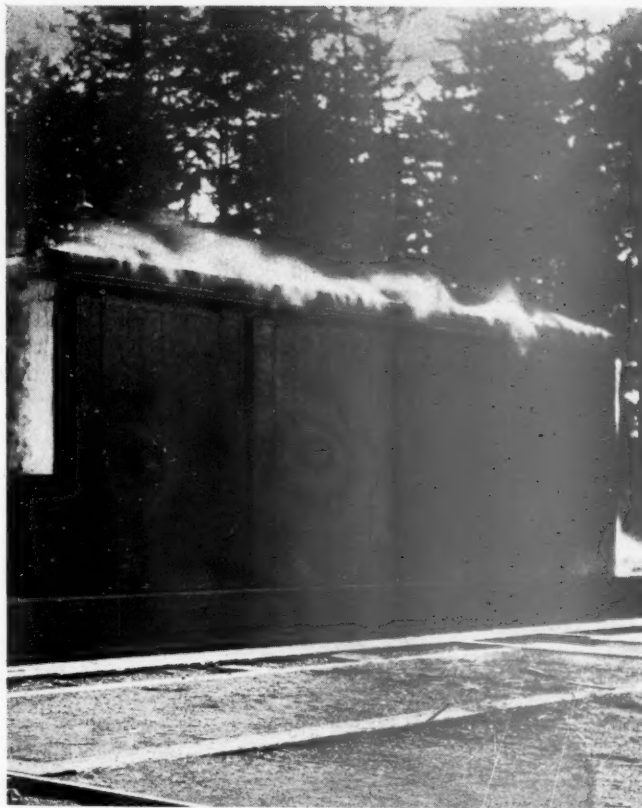
LUMBER and tie purchases compose a large percentage of the total volume of railway purchases. Purchasing to the best advantage requires a fairly intimate knowledge of the location, capacity and equipment of the sawmills, and it is of material assistance to know whether a mill is provided with dry kilns, whether it has an automatic trimmer, whether it is equipped with a gang saw, what the size of the planer is, and what is the maximum length of timbers which can be produced by that mill.

It is also helpful to have a general knowledge of the various species of woods and to know where the mills secure their logs, as the physical characteristics of stands of timber of the same species are different in various localities. Not infrequently, a better product can be obtained from one mill than from another, although the product of each fully meets the specifications. The fir timber, for example, which grows in certain sections of the Puget Sound country, while small to medium in size, has a uniform rate of growth from the heart of the log to the sapwood, and it is of such close grain character as to make it particularly adapted for use in car framing and sills. There are also other stands of large yellow fir of soft texture which yield excellent clear grades. The possession of this knowledge, while not essential to the procurement of lumber bought to specification, is a large help in the distribution of orders.

Mill Inspection Favored

Various methods of purchasing, inspecting and shipping lumber prevail on different railroads. The Northern Pacific places monthly orders for the quantities of lumber required for use within 30 days, and no orders are placed with a shipping date later than 30 days. The inspection is made at the mill as the material is loaded into the cars, the railroad inspector grading and tallying each piece. This is preferable to inspection at destination, for it assures the shipment of 100 per cent of the stock to grade, whereas with inspection or re-inspection at destination, a shipment is considered acceptable if 95 per cent or more is found to be of the grade

* From an address before the Pacific Railway Club, February 12, 1931.



Tacoma Dry Kiln in Operation

ordered. The mills also prefer inspection at the loading point for the reason that rejects may be remanufactured or utilized to the best advantage, while if they are culled at destination, a thousand or more miles from the shipping point, the mill is forced to take a heavy loss in order to have the purchaser accept the culls, or to find another market for them. If the purchaser accepts the degradés, at what is considered a bargain price, the rejected material may remain on hand unused, or will be used in the place of higher grade material, with the result that the work on which it is used may suffer as a result of the inferior material. The cost of inspection by railroad inspectors should average about 50 to 60 cents per 1,000 ft. b. m., which is a small percentage of the delivered cost of the lumber.

Buying Green Lumber

Our car lumber is purchased rough, green from the saw, and is shipped either to South Tacoma, Wash., or Brainerd, Minn., where we operate modern dry kilns. The one-inch clear strips, for use as siding, lining and roofing, are kiln dried to a moisture content of 10 per cent, recommended by the American Railway Association. The two-inch clear stock is dried to a 12-per cent moisture content, and select common decking to 15 per cent. Other items kiln dried are thick and wide fir and spruce clears for caboose and locomotive work, and certain of the smaller sizes of select common framing. After kiln drying, the material is cut to pattern in our own mills and either shipped direct to the point required or stored in dry sheds. We have found that there is a material saving in the purchase of rough green stock to be kiln dried and milled in our own plant, over the purchase of kiln-dried and machined material. In the use of car lumber machined in our own plant, there is the additional advantage of securing stock with uniform matching, which may not be the case if the stock is run to pattern by various mills.

There has been some discussion recently as to the merit in buying blanked car lumber; that is, strips which have been kiln dried and surfaced one side, two sides or four sides. Roads that buy finished car lumber might find it to their advantage to investigate the possibilities in the purchase of these blanks.

Some railroads have recently made large reductions in the number of different sizes of lumber carried in stock. There are excellent opportunities on most railroads to reduce the number of sizes carried in stock still further. The work can be accomplished only by close co-operation between the using departments and the purchases and stores department, but the results to be attained will justify the time and effort required to carry out such work.

Car Lumber

The American Railway Association, Mechanical Division, issued, in 1928, alternate car lumber patterns, with the request that the various railroads ascertain what, if any, saving could be effected by the use of these patterns instead of the M. C. B. patterns issued in 1910. The American Railway Association alternate patterns have, in most cases, narrower faces than the M. C. B. 1910 patterns, undoubtedly due to the adoption by the Mechanical Division, in 1926, of moisture content specifications. After adopting these specifications, it was found more difficult to secure car lumber machined to the M. C. B. 1910 patterns and dried to the 1926 mois-

buying 25/32-in. siding, lining and roofing, and their savings range from \$2 to \$5 per 1,000 ft. b. m.

What Standards for Car Lumber

The Mechanical Division of the American Railway Association, at Atlantic City, in June, 1930, referred to the Committee on Specifications and Tests for Materials, for further consideration, the proposed car lumber specification for all woods used in car and locomotive construction. The proposed specifications contained only two grades, B and Better, and No. 1 Common, respectively, for each item of car lumber. The higher grade, B and Better, is decidedly lower in grade than B and Better lumber prescribed in current grading rules of the West Coast Lumbermen's Association. If the proposed specifications of the Mechanical Division become recommended practice for all railroads, it is only natural to assume that regional lumber associations now having grades which are higher than those proposed in the Mechanical Division's specifications will revise their grades downward to meet the new specifications, and a railroad will then be required to accept lumber of lower grade than has been secured under that name, or to issue a specification of its own, to secure what is desired.

During the year 1929, the production of West Coast hemlock amounted to 14 per cent of the total lumber cut. In 1930, it was 15 per cent, and it is predicted that this will increase to 25 per cent by 1935, and to one-third of the total cut of lumber in the Pacific Northwest



In the Lumber Yard of the Northern Pacific at South Tacoma, Wash.

ture content specification, for the reason that there was not sufficient width in the rough green stock to allow for seasoning to the moisture content specified and milling to the face width provided by the 1910 patterns. It then became necessary for the purchaser either to require the mill operator to cut his rough stock slightly wider, which would be reflected in the sales price, or to adopt a pattern which is narrower in width than the old one. The latter procedure was adopted, but no change was made in the thickness of the pattern, which remains $\frac{1}{8}$ in.

The American Lumber Standards thickness for dressed one-inch boards, finish and clears, is 25/32 in. The A. R. A. alternate pattern also changed the car lumber matching to agree with flooring matching. It has been pretty generally determined that there is very little saving to be made by the use of the A. R. A. alternate patterns over the M. C. B. 1910 patterns, but there is a big opportunity for a saving if the A. R. A. alternate pattern can be revised to a thickness of 25/32 in. instead of $\frac{1}{8}$ in. A number of the railroads are already

shortly thereafter. Hemlock is a much maligned wood, having been confused with the eastern or northern species. It is an excellent wood for a large number of purposes. The Northern Pacific has adopted it as standard for house and building flooring in place of fir, for the reason that it becomes harder with age and usage, will outlast fir for that purpose, and presents a better appearance. Furthermore, the price is considerably less than that of fir flooring. It is quite extensively used for car lining and, to some extent, for car siding and inside roofing. We are also experimenting with kiln-dried B and Better, as well as select common, hemlock for decking in box cars.

The use of hemlock for ties is also growing. We have purchased them in increasing proportions, for the past four years, and this year removed any restriction as to the allowable percentage of hemlock ties to be secured. The hemlock ties are purchased for about \$1 per M ft. b. m. less than fir ties. They must be treated, as untreated hemlock is subject to decay in a short time

(Continued on page 500)



Chicago, Burlington & Quincy 4-8-4 Type Locomotive Built by the Baldwin Locomotive Works

4-6-4 and 4-8-4 Type Power for the C. B. & Q.

Locomotives delivered last November being used in
fast passenger and freight service

EIGHT 4-8-4 type and twelve 4-6-4 type locomotives were delivered during the first part of November, 1930, to the Chicago, Burlington & Quincy by the Baldwin Locomotive Works for freight and passenger service, respectively. The 4-8-4 type freight locomotives, Class O-5, were immediately placed in fast freight service on extended runs between Galesburg, Ill., Lincoln, Neb., and Denver, Colo., and have met all expectations with respect to performance and economy.

These locomotives were purchased to replace light 2-8-2 type locomotives having a rated maximum tractive force of 58,000 lb.

The new power has a rated maximum tractive force of 67,500 lb. One of these locomotives is equipped with a Franklin trailing-truck booster which exerts a tractive force of 13,200 lb., making a total tractive force at starting for the locomotive, No. 5607, of 80,700 lb. These type locomotives operate with a boiler pressure of 250 lb., have 28-in. by 30-in. cylinders, and 74-in. diameter drivers. The factor of adhesion is 4.03.

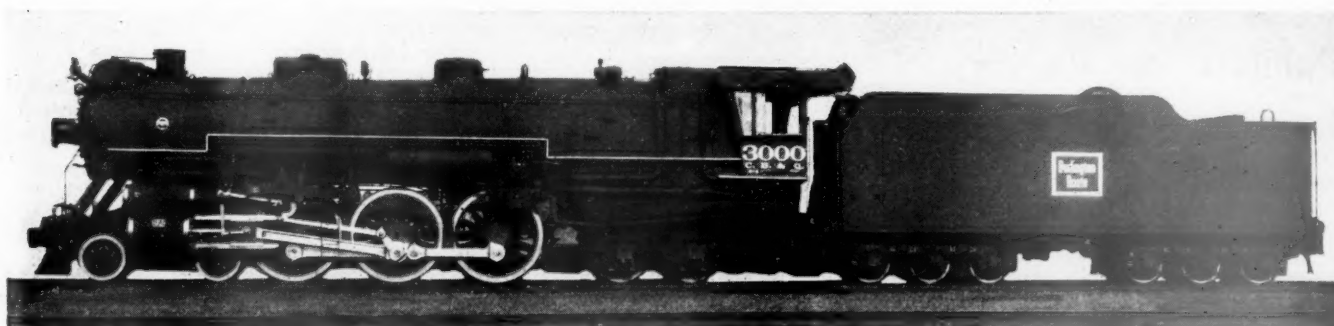
Four of the freight locomotives are equipped with the conventional piston-rod crosshead design. The cylinders are cast integral with the locomotive bed casting. The engine trucks of all eight locomotives have Timken roller bearings and the trucks of one of the eight tenders have a trial installation of American Steel Foundries roller-bearing units. The boiler of locomotive

No. 5607 is of nickel steel. Other special equipment of interest applied to the eight 4-8-4 type locomotives are Type E superheaters, modified Type B stokers, Barco Type B4 power-reverse gears, Elesco feedwater heaters, and Baker valve gears having a travel of 9 in. The valves are 14 in. in diameter.

The twelve 4-6-4 type passenger locomotives, Class S-4, are being used to haul limited trains, such as the "Black Hawk," the "Aristocrat," and the "Ak-Sar-Ben." They are considered to be the most powerful and the heaviest of their type yet constructed. The locomotives have been tested successfully in handling heavy passenger trains between Chicago and Lincoln, Neb., a service which is usually performed by 4-8-2 type locomotives. All of the 4-6-4 type locomotives are equipped with Franklin boosters to permit starting heavy trains without taking slack, to provide increased acceleration and, in some instances, to avoid the necessity of double-heading over critical grades.

They have a rated maximum tractive force of 47,700 lb., which, with the addition of the tractive force of the trailing-truck booster of 11,700 lb., provides a tractive force at starting of 59,400 lb. The boilers operate at a pressure of 250 lb., and the cylinders are 25 in. by 28 in. The diameter of the driving wheels is 78 in. The factor of adhesion is 4.3.

The new 4-6-4 type locomotives also have the cylin-



Passenger Locomotive of the 4-6-4 Type Built by Baldwin for the Burlington

ders cast integral with the steel bed castings. They are equipped with Type E superheaters, modified Type B stokers, Barco Type B4 power reverse gears, Elesco feedwater heaters, and Baker valve gears with a travel of 9 in., with 14-in. piston valves. They are equipped with Hulson Tuyere-type grates.

In order to meet the demands of extended engine runs, both the 4-8-4 and 4-6-4 type locomotives have been

Principal Dimensions and Weights of the Burlington 4-8-4 and 4-6-4 Type Locomotives

Railroad	Chicago, Burlington & Quincy	
Builder	Baldwin Locomotive Works	
Type	4-8-4	4-6-4
Road class	0-5	S-4
Service	Freight	Passenger
Rated max. tractive force	67,500 lb.	47,700 lb.
Tractive force of booster (1)	13,200 lb.	11,700 lb.
Total tractive force (1)	80,700 lb.	59,400 lb.
Weight on drivers ÷ tractive force	4.03	4.3
Cylinders, diameter and stroke	28 in. by 30 in.	25 in. by 28 in.
Valve gear, type	Baker	Baker
Weights in working order:		
On drivers	272,000 lb.	207,730 lb.
On drivers, booster equipped	274,000 lb.	
On front truck	69,300 lb.	
On front truck, booster equipped	68,200 lb.	69,320 lb.
On trailing truck	113,300 lb.	
On trailing truck booster equipped	119,400 lb.	114,830 lb.
Total engine	454,600 lb.	
Total engine, booster equipped	461,600 lb.	391,880 lb.
Total tender	350,500 lb.	326,050 lb.
Total engine and tender	805,100 lb.	
Total engine and tender, booster equipped	812,100 lb.	717,930 lb.
Wheel bases:		
Driving	19 ft. 3 in.	13 ft. 8 in.
Total engine	45 ft. 6 in.	39 ft. 11 in.
Total engine and tender	90 ft. 8 3/4 in.	82 ft. 2 3/4 in.
Wheels, diameter outside tires:		
Driving	74 in.	78 in.
Front truck	37 1/4 in.	37 1/4 in.
Trailing truck	42 1/2 in.	48 3/4 in.
Boiler:		
Steam pressure	250 lb.	250 lb.
Fuel, kind	(Bituminous)	Bituminous
	Lignite	
Diameter, first ring, inside	88 in.	82 in.
Firebox, length and width	102 1/4 in. by 150 1/4 in.	96 in. by 132 3/4 in.
Tubes, number and diameter	57—2 1/4 in.	62—2 1/4 in.
Flues, number and diameter	218—3 1/2 in.	184—3 1/2 in.
Length over tube sheets	21 ft.	19 ft.
Grate area	106.5 sq. ft.	87.9 sq. ft.
Heating surfaces:		
Firebox and combustion chamber	388 sq. ft.	326 sq. ft.
Arch tubes	45 sq. ft.	43 sq. ft.
Tubes and flues	4,878 sq. ft.	3,878 sq. ft.
Total evaporative	5,311 sq. ft.	4,247 sq. ft.
Superheating	2,403 sq. ft.	1,830 sq. ft.
Combined evap. and superheat	7,714 sq. ft.	6,077 sq. ft.
Tender:		
Water capacity	18,000 gal.	15,000 gal.
Fuel capacity	24 tons	24 tons

provided with tenders of large capacity. The fuel capacity of the tenders for both types is 24 tons, while the water capacity for the 4-8-4 type is 18,000 gal. and that of the passenger locomotives, 15,000 gal. The tenders are carried on two six-wheel trucks, which have 36-in. diameter wheels and 6 1/2-in. by 12-in. journals. The rear ends of all 20 tenders are equipped with the Miner A-78X-B draft gear.

Pointers on Railway Lumber and Tie Buying

(Continued from page 498)

when exposed to excessive moisture. The hemlock tie requires a longer period for air seasoning than the fir because it contains from 60 to 70 per cent moisture, as compared with 36 per cent moisture in fir, but it checks very little in seasoning and takes creosote treatment better than the fir. We have two test racks in which

hemlock ties were installed in 1910, one in Montana, and the other in Minnesota. The ties in the Montana track were treated with a solution containing 80 per cent No. 1 creosote oil and 20 per cent California fuel oil, the absorption being approximately 6 3/4 lb. per cu. ft. of wood. After 19 years in track, none of the ties had been removed on account of decay, and, at the present time, after 21 years, most of these ties are still in track. The ties in the Minnesota track were likewise installed in 1910 and few of them have been removed on account of decay. This record compares with the life of creosoted Douglas fir ties, and, if subsequent records prove that the life of the treated hemlock tie is equal to the treated fir, there should be no reason why their purchase should not be continued, providing the present price differential remains.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended February 21 showed a further decline to 713,938 cars, a decrease of 113,622 cars as compared with the corresponding week of last year and of 191,565 cars as compared with 1929. The corresponding weeks of the last two years included the Washington's Birthday holiday, which this year was on February 23. Reductions as compared with both years were shown as to all classes of commodities and all districts. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading			
Week Ended Saturday, February 21, 1931			
Districts	1931	1930	1929
Eastern	167,131	189,295	211,153
Allegheny	142,860	170,998	181,542
Pocahontas	42,622	50,476	58,439
Southern	109,434	134,939	141,498
Northwestern	88,057	96,272	103,206
Central Western	105,449	117,350	136,754
Southwestern	58,385	68,230	72,886
Total Western Districts	251,891	281,852	312,846
Total All Roads	713,938	827,560	905,503
Commodities			
Grain and Grain Products	40,866	41,948	43,933
Live Stock	22,187	23,207	23,765
Coal	136,112	156,784	201,183
Coke	8,650	11,647	13,857
Forest Products	33,840	56,220	60,176
Ore	5,134	8,911	9,362
Merchandise L. C. L.	215,470	219,430	226,776
Miscellaneous	251,679	309,413	326,451
February 21	713,938	827,560	905,503
February 14	720,689	893,140	957,498
February 7	719,053	886,701	955,981
January 31	719,281	898,835	947,154
January 24	715,690	862,346	926,474
Cumulative total, 8 weeks	5,644,222	6,853,953	7,337,591

The freight car surplus for the week ended February 15 averaged 647,243 cars, including 328,801 box cars, 245,828 coal cars, 30,772 stock cars, and 15,552 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended February 21 totaled 47,463 cars, a decrease from the previous week of 572 cars and a decrease of 10,079 cars from the same week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
February 21, 1931	47,463	28,795
February 14, 1931	48,035	29,181
February 7, 1931	46,956	29,360
February 22, 1930	442,001	290,742
Cumulative Totals for Canada		
February 21, 1931	364,636	218,409
February 22, 1930	442,001	290,742
February 23, 1929	476,853	326,143

B. & O. Keeps Expenses in Hand

THE Baltimore & Ohio has issued its preliminary statement of operations for 1930. Net income available for dividends totaled \$21,423,770, a decrease of 25.5 per cent from the preceding year. After the payment of preferred dividends, the balance remaining for the common stock averaged \$7.44 per share. After the payment of the regular dividends, totaling \$7 per share, there remained \$1,128,555 to be carried to surplus.

Freight revenues in 1930 totaled \$173,706,333, a decrease of 15.47 per cent from the preceding year. Passenger revenues declined 16.13 per cent to \$14,386,477. Total operating revenues totaled \$206,660,436, or 15.79 per cent less than in 1929. Maintenance expenses were

year totaled \$109,861,329, equivalent to \$34.86 per share of stock outstanding. The net increase in property investment in 1930 totaled \$24,230,687, of which \$9,659,279 represented equipment, acquisitions of which included five dining cars, seven cafe-parlor cars, 50 coaches and 3,225 freight cars. The company carried forward vigorously its policy of catering to the wants of day coach passengers, introducing several improvements in this service, in which the company's active passenger traffic department is generally recognized as a leader.

Regarding the progress of consolidation insofar as the Baltimore & Ohio is concerned the statement says:

In its complete plan for the consolidation of railroads into a limited number of systems, issued under date of December 9, 1929, the Interstate Commerce Commission allocated the Chicago & Alton Railroad to the Baltimore & Ohio System. A favorable opportunity offering, your company acquired all of the \$16,834,000 general mortgage 20-year 6 per cent gold bonds, due 1932, and more than 96.50 per cent of the \$22,000,000 first lien 50-year 3½ per cent gold bonds, due 1950, of the Chicago & Alton Railroad at a cost of approximately

Table I—Baltimore & Ohio—Revenues, Expenses, Dividends

Year	Total Oper. Rev.	Total Oper. Exp.	Net Oper. Rev.	Net Railway Oper. Income	Other Income	Gross Income	Int. on Funded Debt	Net Income	Total Dividends	Rev. per ton-mile (cents)	Oper. Ratio
1921	\$199,077,853	\$167,072,093	\$32,005,760	\$21,941,696	\$10,125,088	\$32,066,784	\$22,861,053	\$6,388,891	\$2,354,529	1.103	83.92
1922	200,843,170	165,021,375	35,821,795	23,735,005	6,187,132	29,922,137	22,810,616	4,375,373	2,354,527	1.060	82.16
1923	255,594,435	199,323,961	56,270,474	42,133,129	6,032,521	48,165,650	23,333,143	22,422,036	6,153,097	1.012	77.98
1924	224,318,795	172,752,632	51,566,163	38,084,324	5,657,290	43,741,614	24,950,935	16,319,690	9,951,865	1.028	77.01
1925	237,546,940	179,099,597	58,447,343	43,034,087	6,489,977	49,524,064	26,478,252	20,793,508	9,951,797	.005	75.40
1926	252,361,830	186,306,273	66,055,557	50,805,337	6,890,426	57,695,763	27,439,262	28,494,294	11,471,253	.993	73.83
1927*	246,078,510	186,168,521	59,909,989	44,817,227	8,570,687	53,387,914	27,963,957	22,632,345	13,319,019	.977	75.65
1928	236,818,681	172,550,868	64,267,813	49,387,716	7,378,325	56,766,041	25,704,402	29,100,931	15,265,803	.974	72.86
1929	245,418,776	180,570,034	64,848,742	49,184,110	8,427,835	57,611,945	25,547,216	28,767,908	17,722,311	.995	73.58
1930	206,660,436	153,142,375	53,518,061	40,248,613	11,243,924	51,492,537	21,423,770	20,295,215	1.010	74.10

* C. I. & W., Indian Creek Valley and Cheat Haven & Bruceton included for first time.

drastically curtailed—those for way and structures by 23.71 per cent and those for equipment by 19.46 per cent—"but not beyond the point consistent with efficient and safe operation." Furthermore, the statement gives the added assurance that "notwithstanding the curtailment in maintenance expenses, the property was adequately maintained to meet requirements, and is in good physical condition. Because of the liberal maintenance program of preceding years, an even greater curtailment might have been realized had it not been the desire to sustain employment so far as practicable under existing conditions."

Transportation expenses decreased 12.61 per cent. Traffic expenses mounted slightly. Total operating expenses declined 15.19 per cent to \$153,142,375. The operating ratio showed the slight increase from 73.58 in 1929 to 74.10 in 1930. Net railway operating income, \$40,248,613, was 18.17 per cent less than in 1929. Other income, by reason of interest and dividend payments from an augmented ownership of securities of other companies, rose by one-third to \$11,243,924. Total income available for interest, rentals and other fixed charges bore the ratio of 1.71 to these charges.

Details of revenues, expenses, interest and dividends are given in Table I herewith. In Table II are set forth details of freight service operating statistics, which quickly disclose the vigor and success of the management in operating efficiently under adverse traffic conditions. It will be noted that, whereas net ton-miles decreased by 16.6 per cent, train-miles were reduced 18.6 per cent, locomotive-miles 17 per cent and train-hours 21.3 per cent. Despite the decline in car utilization which characterizes a period of depression, cars per train, tons per train, train speed, both gross and net ton-miles per train-hour and fuel efficiency showed substantial increases.

The company's corporate surplus at the end of the

\$23,000,000. This has placed your company in a potential position to acquire this property subject to underlying funded indebtedness and claims aggregating about \$50,000,000. This purchase, which is still subject to the approval of the Interstate Commerce Commission, would add something over 1,000 miles to the Baltimore & Ohio System, including lines to Chicago, St. Louis, Peoria and Kansas City, thereby greatly strengthening the System in the West.

During the year the company concluded the purchase of about 98 per cent of the stock of the Buffalo, Rochester & Pittsburgh Railway Company, and about 99 per cent of the

Table II—Comparison of Selected Freight Operating Statistics 11 Months

	1930	1929	Per cent of change	
			Inc.	Dec.
Mileage operated	5,541	5,536		
Gross ton-miles (thousands)	38,070,750	44,226,441		13.9
Net ton-miles (thousands)	17,199,296	20,616,222		16.6
Freight train-miles (thousands) ..	17,857	21,936		18.6
Freight locomotive-miles (thousands)	23,262	28,031		17.0
Freight car-miles (thousands)	930,361	1,075,554		13.5
Freight train-hours	1,507,240	1,915,184		21.3
Car-miles per day	27.0	31.4		14.0
Net tons per loaded car	30.5	31.1		1.9
Per cent loaded to total car-miles ..	60.6	61.7		1.8
Net ton-miles per car day	500	602		16.9
Freight cars per train	53.1	50.0	6.2	
Gross tons per train	2,132	2,016	5.8	
Net tons per train	963	940	2.5	
Train speed, miles per train hr.	11.8	11.5	2.6	
Gross ton-miles per train-hour	25,259	23,093	9.4	
Net ton-miles per train-hour	11,411	10,765	6.0	
Lb. coal per 1,000 gross ton-miles ..	141	145		2.7
Loco. miles per loco. day	58.5	69.6		15.9
Per cent freight locos. unserviceable	18.4	16.3	12.9	
Per cent freight cars unserviceable ..	5.2	5.9		11.8

stock of the Buffalo & Susquehanna Railroad Corporation. The company has also enlarged its investment in the Reading Company, so that at December 31 it held about 40 per cent of the stock of that company.

At a meeting of the New York Discussion Group of the National Association of Owners of Railroad and Public Utility Securities in December last, Professor William Z. Ripley paid high tribute to the statesmanship of President Willard and the Baltimore & Ohio

management for their efforts to round out their enlarged system and speed the economies expected from improved routing and more efficient facilities contemplated under the plan. The statement to the stockholders bears out Professor Ripley's opinions. The sole important handicap the Baltimore & Ohio has to face is not peculiar to it alone. Neither does it lie within the company itself but outside—that is, in the persistence of our governments, state and national, in subsidizing other methods of transport at the expense of the taxpayers enabling these competitors to filch traffic from the railways which, if they were forced as the railways are to pay all their costs, they could never afford to handle. If an awakened public intelligence should put an end to, or even measurably mitigate, this unjust and nationally-detrimental policy, the Baltimore & Ohio with its present financial, administrative and developmental policies would unquestionably go forward as vigorously in future as in the past to greater heights of economical service to its patrons and greater attractiveness to investors.

Reading's Hard Coal Traffic Increased in 1930

THE Reading in 1930 had operating revenues of \$86,922,614, the lowest of any year since this company became a common carrier (which was in 1924). This and other details of the road's operations are disclosed in the annual report to stockholders, just issued. The decline in gross revenues in 1930 from 1929 was 11.6 per cent. Operating expenses were reduced 5 per cent to \$72,160,861. Net railway operating income totaled \$12,644,507, a decrease of 26.5 per cent from the preceding year. Dividend income showed

equipment by slightly more than four per cent. Transportation expenses declined 5.7 per cent. The operating ratio rose from 78.12 in 1929 to 83.02 in 1930. The corporate surplus at the end of the year totaled \$112,325,626, equivalent to 80.3 per cent of outstanding capital stock, or almost 82 per cent of long-term debt.

The Reading has in recent years been developing rather intensively, the largest project now under way

Table II—Comparison of Selected Freight Operating Statistics
11 Months

	1930	1929	Per cent of change	
			Inc.	Dec.
Mileage operated	1,451	1,452		.06
Gross ton-miles (thousands)	12,729,147	13,321,584		4.5
Net ton-miles (thousands)	6,106,897	6,536,786		6.6
Freight train-miles (thousands)...	6,476	6,985		7.3
Freight locomotive-miles (thousands)	7,628	8,195		6.9
Freight car-miles (thousands)....	301,748	318,999		5.4
Freight train-hours	556,814	618,959		10.0
Car-miles per day	20.6	22.6		8.8
Net tons per loaded car	34.8	33.6	3.6	
Per cent loaded to total car miles	58.2	61.1		4.7
Net ton-miles per car day	417	463		9.9
Freight cars per train	47.5	46.6	1.9	
Gross tons per train	1,966	1,907	3.1	
Net tons per train	943	936	0.7	
Train speed, miles per train hr....	11.4	11.3	0.9	
Gross ton-miles per train-hour....	22,457	21,523	4.3	
Net ton-miles per train-hour....	10,774	10,561	2.0	
Lb. coal per 1,000 gross ton-miles	140	145		3.0
Loco. miles per loco. day	59.5	61.5		3.3
Per cent freight locos. unserviceable	16.4	16.1	1.9	
Per cent freight cars unserviceable	4.6	4.6		

being electrification in the Philadelphia suburban zone which will be completed during the current year. During 1930 the increase in investment in road and equipment totaled \$17,667,288, including the following: 10 Santa Fe locomotives, 20 caboose cars, 2000 box cars, 10 tenders, 10 baggage cars and 70 motor driven passenger cars.

The company has, in proportion to its mileage, one of the largest highway operations of any railroad in the country. Its subsidiary, the Reading Transportation Company, at the end of 1930 had 849 route miles

Table I—Reading Company—Revenues, Expenses, Dividends

Year	Total Oper. Rev.	Total Oper. Exp.	Net Oper. Rev.	Net Railway Oper. Income	Other Income	Gross Income	Int. on Funded Debt	Net Income	Total Dividends	Rev. per ton-mile (cents)	Oper. Ratio
1924	\$92,088,258	\$70,306,556	\$21,781,702	\$18,967,741	\$4,668,775	\$23,636,517	\$5,213,930	\$15,121,316	\$8,397,807	1.241	76.35
1925	91,496,379	68,633,516	22,862,864	20,354,629	5,220,324	25,574,953	5,085,743	17,159,619	8,397,602	1.174	75.01
1926	99,290,136	73,508,751	25,781,385	22,032,863	4,836,688	26,869,551	4,972,058	18,531,122	9,797,384	1.165	74.03
1927	92,590,436	71,880,069	20,710,367	16,790,121	5,095,461	21,885,582	4,874,333	13,496,660	8,397,602	1.190	77.63
1928	89,940,034	69,826,345	20,113,688	17,098,849	6,224,825	23,323,673	4,820,472	15,090,690	8,397,602	1.191	77.64
1929	97,196,955	75,929,795	21,267,159	17,196,521	6,953,343	24,149,864	4,690,887	15,508,740	8,397,602	1.203	78.12
1930	86,922,614	72,160,861	14,761,753	12,644,507	4,921,498	17,566,005	5,113,193	8,462,627	8,397,602	1.168	83.02

a decline of about two millions, whereas interest on funded debt increased slightly so that net income, \$8,462,627, represented a falling off of 45.4 per cent. It was, however, sufficient to pay the customary dividends of 8 per cent on the common stock outstanding, permitting a small surplus to be carried to profit and loss.

The Reading's freight revenues in 1930 were derived almost equally from coal and merchandise (i. e., all other traffic excepting coal), receipts from each being slightly more than 37 millions. In 1929, however, merchandise considerably outweighed coal as a source of revenue. The decrease in merchandise earnings from 1929 to 1930 was 17.6 per cent. Coal traffic earnings, on the other hand, showed a high degree of stability and receded less than one per cent. As a matter of fact, bituminous traffic fell off by more than 7 per cent, but this was more than offset by an increase of practically 19 per cent in anthracite tonnage handled.

The Reading, moreover, did not permit reduced earnings to result in any serious curtailment of its maintenance program. The outlay for maintenance of way was reduced by less than six per cent and that for

of motor coach lines in operation, of which 256 miles were added during the year. The transportation company operated 77 motor coaches at the end of the year, and has inaugurated its first motor truck line, handling l.c.l. freight.

The Reading, in sum, at the end of a very trying year nevertheless found itself, comparatively speaking, in a strong position both financially and in anticipation of increasing demands from its patrons when business conditions improve. The announcement of the Baltimore & Ohio that it now owns some 40 per cent of the stock of the company must unquestionably be a source of gratification to it, not alone because of the intrinsic value of the Reading System but because of its importance in improving the B. & O.'s strength as a trunk line carrier.

THE TRANSPORTATION COMMITTEE of the Dallas, Tex., Chamber of Commerce, has modified its routing circulars, which permit only certain lines to solicit shipments to specific points, so that any road having pick-up and delivery service may solicit freight no matter what its destination.

The First Locomotive Run on the Baltimore & Ohio

WHEN the Baltimore & Ohio was first constructed, more than a hundred years ago, some doubt existed among English engineers that steam locomotives could be employed economically on curved track, because, as an English engineering journal of 1830 expressed it, "the power required to overcome the acclivities of such rails is just so much exerted to no purpose on the level." This experiment on the Baltimore & Ohio not only demonstrated that steam power could be used on a railroad as effectively as horse power, but it also dispelled the doubt as to whether steam locomotives could be operated on any but tangent track.

A description of the trial run of 26 miles, from the Baltimore Gazette, was reproduced in the Mechanics Magazine (England) on October 6, 1830, as follows:

"On Saturday (the 28th of August last [1830]) the first railroad car, propelled by steam, proceeded the whole distance from Baltimore to Ellicott's Mills, and tested a most important principle, that curvatures of 400 ft. radius offer no material impediment to the use of steam-power on railroads, when the wheels are constructed with a cone on the principles ascertained by Mr. Knight, chief engineer of the Baltimore and Ohio Railroad Company, to be applicable to such curvatures. The engineers in England have been so decidedly of the opinion that locomotive steam-engines could not be used on curved rails that it was much doubted whether the many curvatures on the Baltimore and Ohio Railroad would not exclude the use of steam-power. We congratulate our fellow-citizens on the conclusive proof which removes for ever all doubt on this subject, and establishes the fact that steam-power may be used on our road with as much facility and effect as that of horses, at a very reduced expense.

"The engine (Cooper's locomotive-engine) started from the Pratt-street depot, taking the lead of a train of carriages. The power of the engine is little, if any, over that of one horse, and it can therefore only be regarded as a working model. Immediately in front of and connected with it was a passenger carriage containing (including the engine-attendants) twenty-four persons. The aggregate weight of carriages, persons, fuel and water, as nearly as could be ascertained, was estimated to be from four to four and a half tons. Notwithstanding the great disproportion of the moving power to the load, the following high gratifying results were obtained—the time being accurately noted by disinterested gentlemen of the first respectability.

"1st mile—performed in six minutes and fifty seconds, the steam in the outset not being fully raised.

"2d mile—performed in five minutes; one minute lost in altering switch to pass from one track to the other.

"3d mile—travelled in six minutes; two minutes lost in changing from one track to the other, the switch not being in the right place.

"4th mile—was travelled in four minutes and thirty seconds.

"5th mile—occupied five minutes and twenty-five seconds.

"6th mile—travelled in six minutes; one minute was lost in changing to the other track.

"7th mile—travelled in five minutes and thirty seconds. The engine stopped at the middle depot for fifteen minutes to receive a supply of water.

"8th mile—performed in six minutes.

"9th mile—performed in five minutes and forty-five seconds; the engine traversing an ascent of thirteen feet per mile, and encountering the numerous curves which abound in this part of the road.

"10th mile—performed in seven minutes—the engine still ascending at the rate of thirteen feet per mile, and the road much curved.

"11th mile—in seven minutes and thirty seconds; the same disadvantage of an ascending and curved line of road being still encountered.

"12th mile—in seven minutes and thirty seconds; the ascent being here increased to eighteen feet per mile, and the line curved.

"13th mile—in six minutes and thirty seconds; the same disadvantages of an ascending and curved line being encountered as in the preceding mile.

"Making the aggregate passage of thirteen miles, under the circumstances detailed, in the space of one hour and fifteen minutes.

"On the return of the locomotive-engine, at six o'clock in the evening, the following results were realized—there being four additional passengers, or thirty in all, seated in the attached carriage:—

1st mile—travelled in five minutes.

2d mile—in four minutes.

3d mile—in four minutes, six seconds.

4th mile—in four minutes.

5th mile—in four minutes, four seconds.

6th mile—in four minutes, five seconds (four minutes occupied in taking in a supply of water.)

7th mile—in five minutes.

8th mile—in three minutes, fifty seconds.

9th mile—in four minutes, twenty-five seconds.

10th mile—four minutes, ten seconds.

11th mile—in four minutes, forty seconds.

12th mile—in four minutes, fifty seconds.

13th mile—in four minutes, fifty seconds.

"Making the entire passage of thirteen miles in sixty-one minutes, including the four minutes lost in taking water at the middle depot. If this be deducted, it will give precisely fifty-seven minutes as the time which the engine consumed in traveling the distance. It should also be borne in mind that these are experiments merely, and that several material improvements have already suggested themselves to the inventor. The result, under all the circumstances, is highly satisfactory, and constitutes another triumph of the efforts of American genius."

After this run, Ross Winans, inventor, and locomotive builder for the Baltimore & Ohio during the first quarter century of its existence, reported to Phillip E. Thomas, president of the railroad, in a letter written on August 28, 1830. Mr. Winans in this letter discusses the practicability of steam as a motive power, railway operation on curves and the shape of the wheel treads, all problems which at times appeared to present insurmountable obstacles to the early railway builders. Mr. Winans' report was as follows:

"The performance of the working model or experimental locomotive-engine of Mr. Cooper has been such to-day as to induce me to attempt a hasty comparison of its dimensions and performances with some of the late celebrated English locomotives, having witnessed the grand locomotive exhibition at Liverpool in October last, for the £500 prize, and many other interesting experiments by the Novelty and Rocket since that time. As Mr. Cooper's engine has been got up in a temporary manner, and for experiment only, and has been on the road but a few days, it will be no more than justice to make the comparison with some of the early experiments of the English engines. I have, therefore, selected the experiment of the Rocket, in October, on the result of

* Reproduced with the courtesy of the Bureau of Railway Economics and the Railway Research Service (London).

which the premium of £500 was awarded to Mr. Stephenson, its builder, for having produced the most efficient locomotive-engine, &c. The Rocket is professedly an eight-horsepower when working at a moderate speed; but when working at high velocities, she is said to be more than eight-horse power. Its furnace is 2 ft. wide by 3 ft. high; the boiler is 6 ft. long and 3 ft. in diameter. The furnace is outside of the main boiler, and has an external casing, between which and the fire-plate there is a space of three inches filled with water, and communicating with the boiler. The heated air from the furnace is circulated through the boiler by means of 25 pipes of two inches internal diameter. It has two working cylinders of eight inches internal diameter, and 15 in. in length, each, or thereabouts. The road wheels, to which the motion is communicated, are 4 ft. 8½ in. in diameter.

"Mr. Cooper's engine has but one working cylinder of 3¼ in. diameter, and 14¼ in. stroke of piston, with a boiler proportionately small, or nearly so. The wheels of the engine, to which the motion is communicated, are 2½ feet in diameter, making it necessary to gear with wheel and pinion, to get speed, by which means a considerable consumption of power is experienced. You will perceive by the foregoing that the capacity or number of cubic inches contained in the cylinder of Mr. Cooper's engine is only about one-fourteenth part of that contained in the two cylinders of the Rocket; consequently it can only use one-fourteenth the quantity of steam under the same pressure, when each engine is making the same number of strokes per minute, which is nearly the case when the two engines are going at equal speed on the road. The total weight moved in the experiment above alluded to, by the Rocket, including her own weight, was 17 tons, on the level road, at an average speed of 12½ miles the hour, thereby exhibiting a little less than six horse power. Mr. Cooper's engine has to-day moved a gross weight of 4½ tons from the depot to Ellicott's Mills and back in the space of two hours and ten minutes, which, as you are aware, the distance being 26 miles, gives an average speed of 12 miles to the hour. As the engine returned with its load to the same point from whence it started, the acclivities and declivities of the road were of course balanced, and at least as much time and power (if not more) were required to traverse the whole distance as would have been on a level road; therefore, Mr. Cooper's engine exhibited an average force during the time it was running of 1.43 horse power, or nearly one and a half, which is more than three times as much power as the Rocket exhibited, during the experiment above described in proportion to the cylindrical capacity of the respective engines; this, no doubt, originated in a considerable degree from the steam being used in Mr. Cooper's engine at a higher pressure than in the Rocket. We are, however, not able to come to any very correct conclusion as to what extent this cause prevailed (Mr. Cooper's steam-gauge not being accurately weighed), which prevents a more minute comparison being made.

"It may be said that subsequent practice and experience with the Rocket have enabled her constructor to produce more favorable results, which is no doubt the case, but we have every reason to expect a similar effect with regard to Mr. Cooper's engine—judging from what we have witnessed, each exhibition of its power being, as yet, an improvement upon the one that preceded it. It is, however, too small and too temporary in its construction to expect a great deal from the friction of the parts; the heat lost in a small engine being much greater in proportion to the power than in a large one; but to-day's experiments must, I think, establish, beyond a doubt,

the practicability of using locomotive steam-power on the Baltimore and Ohio Railroad, for the conveyance of passengers and goods at such speed and with such safety (when compared with other modes) as will be perfectly satisfactory to all parties concerned, and with such economy as must be highly flattering to the interests of the company.

"It has been doubted by many, whether the unavoidable numerous short curves on the line of your road, and inclined planes, would not render the use of locomotive power impracticable, but the velocity with which we have been propelled to-day by steam-power round some of the shortest curves (to wit, from 15 to 18 miles per hour) without the slightest appearance of danger, and with very little, if any, increased resistance, as there was no appreciable falling off in the rate of speed, and the slight diminution in speed in passing up the inclined planes, some of which were nearly 20 ft. to the mile, must, I think, put an end to such doubts, and at once show the capability of the Baltimore and Ohio Railroad to do all, and much more than was at first anticipated or promised by its projectors and supporters.

"This admirable effect of turning curves of 400 ft. radii at fast speed, with very little, if any, increased resistance, I believe to be new in the history of railways, or, at least, that it is brought to a greater degree of perfection on the Baltimore and Ohio Railroad than on any other. It results from the judicious and scientific construction of the tread of the main-wheels (introduced by Mr. Knight, your principal engineer), by combining the cone and cylinders, which expedient, as far as I know, has never been attempted in Europe. In the formation of the tread of the main-wheels, each possessing their peculiar advantages and operating much more beneficially when connected than when used separately, the main tread, being cylindrical, offers less resistance to motion (when moving in a right line) than any other shape. That part of the face of the wheel which is assigned for play on the rail is made conical, and is only called into action when necessary, and to such an extent only as to correct the course of the car; and all the cone being placed immediately between the inside edge of the rail and the flange of the wheel, it is evident the flange can never come into contact with the rail until the whole cone is brought into action (which is far from being the case with the English coned-wheel), the extent of which being graduated to the extreme curves of the road, is sufficient to counteract the shortest curves, thereby enabling the wheels to traverse much shorter curves, and at the same time avoid some of the disadvantages of a cone extending over the whole tread of the wheel. This effect is materially aided by the free and unrestrained action afforded to the cone of the wheels, by the peculiar construction of the wagons adopted by the Baltimore and Ohio Railroad Company.

"These improvements cannot fail to secure a profitable return for money invested in this road, and will undoubtedly induce the Company to adopt steam as a moving power upon it instead of horses, as was at first anticipated. Steam will be found not only to produce a great saving in the cost of transportation, but with it a much higher rate of speed may be attained for goods and produce as well as passengers than by animal power, it being one of the advantages of steam-power on railroads that the cost of transportation is very little, if any, increased by an augmentation of speed. You will also thereby be enabled to avoid the great perplexity and delay which would originate from two rates of speed; viz. —The one for goods, &c. and the other for passengers, and the cost of constructing numerous turns-out to accommodate such arrangements will be saved."

Floating Operations Rendered More Efficient

Pennsylvania, Long Island and New Haven
co-ordinate harbor interchange

AS a result of combined operations and a careful study of the conditions, the Pennsylvania, the Long Island and the New York, New Haven & Hartford have placed their floating interchange in New York Harbor on a basis that is resulting in material savings.

On October 1, 1928, the New York operating zone of the Pennsylvania was formed, bringing under one head the interchange operations in New York harbor between the Pennsylvania on the mainland and the Long Island and the New York, New Haven & Hartford on Long Island, which interchange is effected by means of tugs and floats. This interchange averages about 1,600 cars per day. The eastbound business moves into the Pennsylvania's yard at Greenville, N. J., from which point it is interchanged with the Long Island and the New Haven over two water routes, one via New York bay to Bay Ridge, L. I., 3.5 miles, and the other via the bay and the East river to Long Island City, L. I., 7.75 miles. The scheduling of this traffic is complicated considerably by the heavy water-borne traffic moving on the bay and the East river, including ocean liners, freighters, ferry-boats and thousands of other craft that make the New York harbor the busiest in the world. The routes used are shown on the accompanying map.

A Joint Committee Appointed

To devise means for improving these operations a joint committee was appointed on October 29, 1928. After several meetings and full investigation and discussion of the various phases of co-ordination of the New Haven and certain of the Long Island floating operations, a preliminary plan for co-ordinating schedules and improving operations was devised. It was felt, however, that, in view of the importance and far-reaching effects of such changes in practice, the advisability of the plan could best be determined by conducting an actual test for a period of one month. Accordingly, this test period was entered into and, after a further test period

of a week, the efficiency of the operations was sufficiently demonstrated and the arrangement was made permanent.

Revising the Schedules

The original schedule provided for nine round trips per tug per day, with an equipment for normal business of two tugs and four pairs of floats, this being increased to three tugs and five pairs of floats when conditions warranted. Each float carries 20 cars, and the two tugs and four pairs of floats can handle 1,440 cars per day, while the three tugs and five pairs of floats can handle 2,160 cars per day.

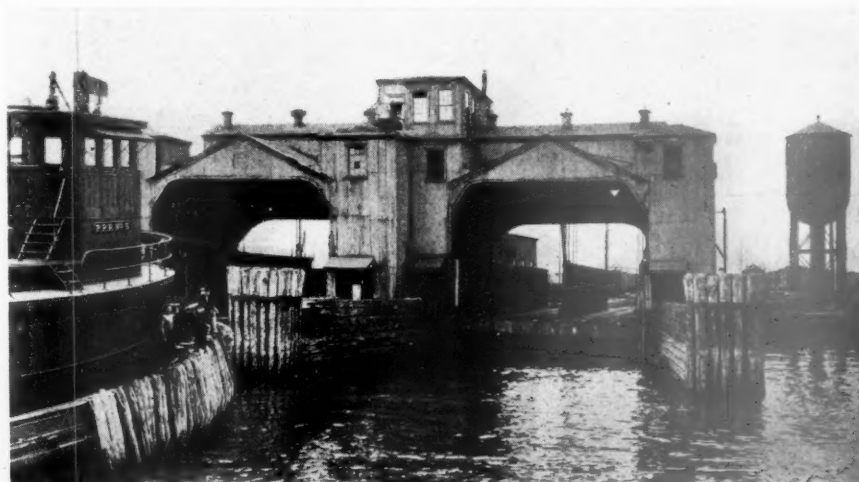
The tentative schedule was changed several times during the test period, until the most efficient schedule could be devised. The final schedule is based on the most even distribution of the float bridge time possible, and, in addition to providing for more efficient utilization of the float bridges, it also provides for more efficient utilization of the tugs by arranging the times at which each tug shall take fuel and water, so that there is little or no delay to the operations.

The efficiency of the schedules has been increased by permitting either Long Island or New Haven tugs to tow the floats that are ready, regardless of the ownership of the floats. Such floats as are loaded with perishable freight are moved in advance of the schedule, if ready, in order to expedite their movement. The efficiency of this arrangement is indicated by the fact that the number of cars handled per engine hour at Greenville since the new operations have been in effect have been increased over 35 per cent, while the average idle time between floats has decreased from 58 min. to 40 min. Likewise, at Bay Ridge, the number of cars handled per engine-hour increased from 15.47 to 18.50, and at Long Island City from 8.35 to 7.63.

Classification Improved

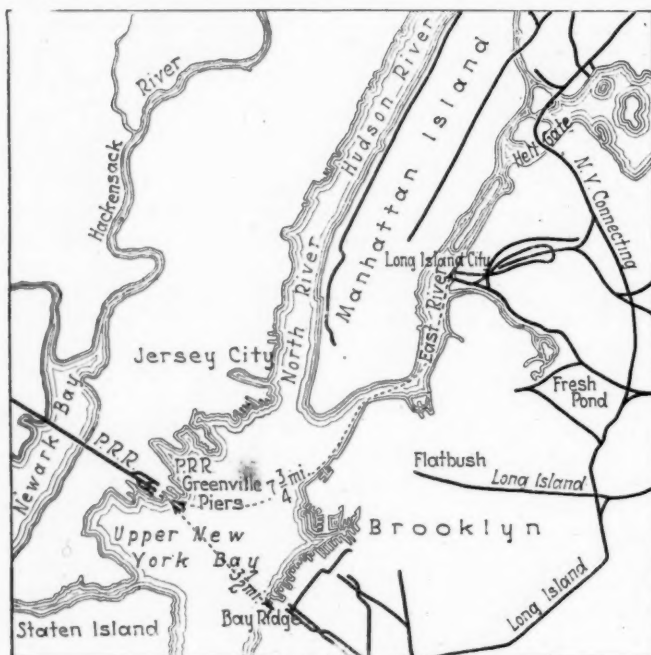
New Haven interchange, eastbound and westbound, continues to move via Bay Ridge, this movement being

Where Rail and Water Meet—
The Interchange of the Penn-
sylvania at Greenville, N. J.



made principally with New Haven equipment and under the immediate jurisdiction of New Haven officers. In addition, cars for the Long Island, destined to points in the Bay Ridge and Fresh Pond districts and to Holban yard, are now moved via Bay Ridge, instead of via Long Island City, thus providing a shorter water haul and an equal or shorter rail haul as well. Westbound loads from the Long Island, originating in this district, are also handled via Bay Ridge, together with such westbound empty cars as the operating convenience on the Long Island may cause to move through Bay Ridge. All other Long Island interchange, both loads and empties, is moved via Long Island City as heretofore.

To facilitate the revised operations, two additional classifications are now made at Greenville yard for the Long Island, making a total of five pre-classifications. Two of these cover cars for movement via Long Island City and three via Bay Ridge. On westbound business,



How the Car Ferries Operate

the Long Island classifies only as between loads and empties. To facilitate handling, the cars are not mixed, each float containing only New Haven or Long Island cars.

Assignment of Equipment

The assignment of equipment also has been improved. The normal operation provides for two tugs and four pairs of floats, with relay pairs at Greenville and Bay Ridge. When the volume of traffic warrants, an additional tug and floats are provided, the Pennsylvania providing the additional tug and the New Haven the additional pair of floats.

To provide for emergencies, the New Haven holds two floats in readiness at Greenville and the Pennsylvania one. When fogs or other conditions occur to interrupt the service, these tugs and five pairs of floats are assigned when the service is resumed, and continued in service as long as is necessary to clear up any accumulation which may have developed. The assignment of additional equipment is made with the approval of all three roads involved.

The operation of the co-ordinated service on the revised schedule has proved entirely satisfactory. The schedule has been consistently maintained, the only ex-

ception occurring during unusual conditions such as fogs, or when a float bridge is temporarily out of service.

During the early part of the test period, while the forces and equipment were being adjusted to the new method of scheduled co-ordinated floating, there were several interferences to the service, and the towing and shifting tug hours were rather high. As the test progressed, and normal conditions again prevailed it was found that these items could be reduced materially, and, since the closing days of the test period, the shifting hours have been entirely eliminated.

Four of the five float bridges at Greenville are now assigned to the Greenville-Bay Ridge service, the fifth being used for the Greenville-Long Island City interchange. To secure the maximum efficiency from this one bridge and to eliminate congestion and dead time, the following schedule was worked out and put into effect:

	Empties	Westward Empties	Loads	Empties	Loads
Lv. Long Island City	4:00 a.m.	8:00 a.m.	10:30 a.m.	4:00 p.m.	10:00 p.m.
Ar. Greenville	6:00 a.m.	10:00 a.m.	12:30 a.m.	6:00 p.m.	11:59 p.m.
Eastward					
Lv. Greenville	7:00 a.m.	11:00 a.m.	1:30 p.m.	7:00 p.m.	1:00 a.m.
Ar. Long Island City	9:00 a.m.	1:00 p.m.	3:30 p.m.	9:00 p.m.	3:00 a.m.

The committee has prepared a standard operating report form to cover the operations, to replace the varying reports formerly in use by the three lines. The new report gives a clear picture of the entire operation and affords an accurate check on the details of each feature, which is important in view of the distance between the interchange terminals and the time consumed by supervisors in getting from one to the other.

Better Service

By handling cars destined to Long Island points in the Bay Ridge district, direct from Greenville to Bay Ridge, an earlier delivery of approximately 24 hr. is effected, while from two to eight hours are saved on the cars destined to southern Long Island points, moving via this route. This also relieves the Long Island City yard of much work, and permits quicker switching on the cars intended for that congested manufacturing district. In the reverse direction, the loaded westbound cars are handled with similar savings in time, brought about by the shorter haul, both water and rail. Again, owing to a difference in the grades, it is possible to haul considerably heavier tonnage out of Bay Ridge than out of Long Island City, thus effecting further operating economies.

The decrease in the number of cars moving through Long Island City has reduced the number of yard engine hours, and, at the same time, the regular scheduling of the float movements has had such an effect in promoting more efficient operation at Greenville, that the yard force is now able to make two additional pre-classifications for the Long Island without increased expense.

The utilization of the floating equipment has also been vastly improved. The new methods have practically eliminated hold-outs of tugs and floats waiting for bridges at Greenville, and have permitted a better turn-around of outside companies' floating equipment at that point. Furthermore, the Long Island tug hours and number of floats have been reduced, and it is no longer necessary to charter outside equipment to aid in handling the business while overtime on the New Haven tugs has been practically eliminated.

ACCORDING TO THE GREAT WESTERN MAGAZINE, as quoted in the Railway Gazette (London) the Great Western of Great Britain now allocates the major portion of the compartments on its passenger trains to smokers. Non-smokers must look for a specially labeled compartment.

Final Motor Transport Hearings

WASHINGTON, D. C.

THE final series of hearings in connection with the Interstate Commerce Commission's investigation of the co-ordination of motor transport was begun at Washington on March 4 before Chairman Brainerd and Attorney-Examiner L. J. Flynn for the receipt of testimony on behalf of several eastern and southern railroads and final summary statements on behalf of the Association of Railway Executives and representatives of the bus and truck operators. Reservations of time were made at the opening of the hearing which would require over a week, exclusive of cross-examination.

The first witness was John F. Deasy, vice-president in charge of the Central Region of the Pennsylvania, who outlined in detail its co-ordinated bus and truck services and its plans for extending these operations. He also made specific recommendations looking toward what he called a sound national policy toward both rail and highway transportation, without imposing "restrictive" regulation upon motor transportation. He said in part:

The economic problem involved is one of co-ordination of highway and rail transportation, which, in its development, will probably need revision from time to time to meet changing conditions. It is up to the railroads to bring forth the means of co-ordination and I should respectfully say that it is up to the regulatory bodies to prevent discrimination as between communities and the public in general and to constantly guard the public interest. The economic conditions involved arise from the fact that there is at the present time very limited co-ordination developed. The commission has also indicated that it would like information on the obstacles, legislative or otherwise, that stand in the way of accomplishing further and more effective highway co-ordination. I know of no such obstacles.

The question of co-ordinated transportation in my opinion is an economic one and not a regulatory or legislative one, so that my remarks on regulation do not in any way apply to regulation for the benefit of the rail carrier. With that understanding, I think moderate, reasonable, and non-restrictive regulation would foster highway transportation as it has public utilities generally. Moderate regulation for highway transportation ought to be an advantage in the interest of the public and of motor transportation. So long as the railroads are permitted directly or indirectly to have the same opportunities as any other individual or firm to engage in highway transportation and be subject to the same form of regulation, that is all in my opinion that the railroads could possibly ask for. If highway transportation is more economical than rail transportation then rail transportation should give way to highway transportation. If the two can be co-ordinated and produce a cheaper transportation to the public—and I believe it can be done—then, obviously, that is the thing to do.

Our suggestions with respect to regulation and co-ordination contemplate a *reduction* in the total cost of transportation to the public. Highway transportation regulated in the interest of motor transportation and the public, co-ordinated with rail transportation, will, we believe, result in a reduction in the total transportation costs to the public.

The regulation which we propose is not designed for the purpose of transferring to the rails, traffic which can more efficiently and cheaply be moved by highways. On the contrary, the thought underlying our proposal is that the public is entitled to the best and cheapest transportation service of which economic conditions permit. In order to secure to the public full advantages of rail and highway transportation, we propose a regulation which shall foster the full and free co-ordination of both these forms of transportation. To the extent that the highway alone furnishes a cheaper and more satisfactory service than the rail alone, traffic under our proposal would not be restricted to the rail carriers but might further be diverted from them. Conversely, if the railroads in conjunction with highway transportation should as to certain traffic provide more efficient, cheap, and satisfactory service than the highway alone, the regulation and the scheme of co-ordination which we propose might, and we think will, result in a regain to the rail

carriers of certain traffic which now moves by highway.

The question of taxation of motor transportation activities is one we believe should be considered independently of this proceeding. Highway construction and maintenance and the protection of users of the highways are matters primarily of state concern. We are of the opinion that the question of taxation is primarily for the states rather than for federal legislation, and we, therefore, assume that this commission would not include any recommendations with respect to this matter in its decision.

In my opinion there must be a more advanced and receptive attitude by the railroads and the public toward new practices, new customs, and new forms of transportation. The future progress of American railroads depends upon their ability to provide the most economical and convenient transportation obtainable. To do this it is essential that the railroads make available a system of co-ordinated transportation which will enable the public to utilize the kind of transportation it wants—rail, highway, waterway and airway—in the field in which each can best perform. All forms of transportation should be maintained with a proper return to the operation.

Our success as railroads will depend on our ability to produce economically the transportation required in whatever form that service is provided. Certain fundamental principles underlie sound co-ordination of transportation.

1. Any essential form of transportation should not be restricted in its economic sphere of activity.

2. Co-ordination of railroads with highways, waterways, and airways should be brought about in such a way as to permit each of these agencies to give the public maximum service at minimum cost.

3. Co-ordination should be such as to enable each agency to perform in the field to which it is best adapted.

4. The process is essentially an economic one and not a regulatory or legislative one.

5. Railroads cannot hold to the railroads a monopoly of transportation. However, they should have the privilege of engaging in any form of transportation.

The initiative and enterprise in developing a system of co-ordinated transportation on a sound basis rests primarily with the railroads in co-operation with all other forms of transportation. A function of regulation in the process should be to prevent discrimination. It is possible to develop along these lines without materially disturbing standard railroad practices and customs, but in any event, where the old conflicts with the new and the new is the sounder method, the old must give way. The future of the railroads, if permitted to function as they should, ought not to be disturbing. New forms of transportation and the possibilities of co-ordinating them with the railroads offer a field of transportation expansion which should not only meet the modern needs of business in cutting distribution costs, but should also be reflected in more stable and satisfactory returns upon the capital invested in all forms of transportation.

For the present we do not anticipate that the Pennsylvania Railroad will engage in highway trucking, for the reason that our studies indicate motor truck transportation has the advantage of cheaper terminal costs, while rail transportation has the advantage of the cheaper cost for the line haul. It is financially and physically impossible for our railroad to materially expand its lines in the larger city areas because of the complex and congested traffic conditions, and to give the same economy in terminal operations as we have been able in the past to give to the smaller communities.

It is impossible for the motor agencies with their individual units to give the economy in distance transportation which the railroads can provide in mass movements in train lots. On the basis of sound economy and co-ordination of highway and rail service it is, therefore, obvious that the motors should perform the terminal deliveries and the rails in the line haul. Acting together the motors and rails should be able to give the public cheaper transportation with improved methods without lessening the return to either.

The highway truck competition paralleling our railroad is confined almost entirely within the 250-mile zone where the rail class rates are the highest. The solution of this problem in our judgment would be the creation of a co-ordinated transportation arrangement whereby the rail carrier may transport within the 250-mile area the truck bodies for the trucker. This can be accomplished at a rate below the trucker's costs, which rate will yield to the rail carrier a greater net return than it receives under its present rate arrangement because of its present expensive terminal operations.

The plan contemplates that the rail carrier would be relieved

of a portion of its terminal work and the trucker would be relieved of the line haul, thus permitting each of these agencies to co-ordinate and give to the public a lower total transportation cost through a combination of the economical advantages respectively offered by these forms of transportation agencies.

To accomplish this the rail carriers can and should transport the truck body in rail service from point of origin to destination, where the trucker will take the truck body and perform the terminal service; that is the collection of the freight at the store-door and the delivery of the freight at the store-door. The plan contemplates that the trucker should deliver his truck body to the railroad, where it would be lifted by crane and placed on a freight car and transported to destination, where it would be placed on the chassis for terminal delivery by the trucker.

We are practically ready now to apply to the Interstate Commerce Commission for permission to establish an experimental service of this character between New York and Philadelphia.

By way of showing that the Pennsylvania has received a satisfactory return from its investment in trucking companies and in bus lines Mr. Deasy said that the trucking companies in which it had an interest for the year 1930 earned gross \$3,711,135 and net \$246,978 and that the Pennsylvania Greyhound Lines for the year had earned gross \$6,725,820 and net \$856,592. Trucks operated by trucking companies in station-to-station service as substitutes for local peddler trains now cover 49 routes, covering 1,770 route miles daily, with an approximate annual saving of \$1,335,000. Aside from the direct economy of money and time in the movement of freight traffic actually transported in these trucking operations, he said, considerable intangible value has developed through the elimination of interference to steam trains in areas where the traffic is dense.

Mr. Deasy was followed by G. C. Woodruff, chairman of the board of the United States Freight Company, appearing in behalf of the New York Central, who described the development of the container car service and advocated its extension generally as an effective means of meeting truck competition and at the same time of effecting economies in the handling of less than carload traffic and of furnishing an improved service to shippers. He said that the plan had originated in an effort to improve the handling of l.c.l. freight at a time when truck competition had not been extensively developed but that experience had demonstrated that it represents a way of co-ordinating rail and motor transport so as to use the rails for the road haul and the trucks as an auxiliary for the terminal service at both ends, thus allowing each form of transportation to function most economically. He expressed the opinion that the railroads that have gone in for over-

road trucking have not found it very profitable and said that the truck operators are beginning to perceive that they can make more money by confining their service to the terminal pick-up and delivery. While the extension of the container service has been to some extent held up by the uncertainty caused by the commission's investigation and its suspension of container rate tariffs, he said that the New York Central has plans under way with a view to extending this service ultimately even to the smaller points. For this reason it has been extending the use of a drop-side container car which provides a more mobile service than that which requires use of a Gantry crane because the containers can be handled at small stations by lift trucks. The development of container service, he said, will go a long way toward keeping traffic on the rails and getting back much of what has been lost.

No New Railroad Law

(Continued from page 493)

ideas he had expressed in his report. It provides that the commission shall not approve unifications where, except for its approval and authorization, the unification would be in violation of any of the anti-trust laws, except in the case of short line railroads which the commission shall find should be included in some unification. It would not authorize unifications except on a finding that "existing carrier competition will not be substantially lessened." The commission would be specifically authorized and directed to prescribe terms and conditions to prevent the dismissal, layoff or demotion of employees or to compensate employees for losses sustained by change of residence, etc., incident to consolidation. The bill also includes most of the procedural details of the Fess bill reported by the Senate committee in the Seventieth Congress. Senator Couzens said he did not subscribe to all the details of the bill but that he desired to have it printed and available for study before the next session.

When the short session of Congress opened in December the Senate committee decided that its principal work for the session would be the bill to regulate bus transportation, which had been passed by the House. The Senate committee rewrote the bill but the Senate recommitted it for further consideration and since then little has been done about it, although a sub-committee was appointed to study the matter.

* * *



The Richmond, Fredericksburg & Potomac's New Double-Track Bridge Over Powell's Creek, at Cherry Hill, Va.

Communications and Books...

Open Cars for Automobiles

WARSAW, IND.

TO THE EDITOR:

It is common gossip that our railroads are having meetings with automobile manufacturers making an endeavor to arrive at a satisfactory rate for automobile traffic to compete with the truck and one of the stumbling blocks is the number of automobiles that can be loaded in an "automobile car."

Of course in this day of specialists we have to conform to precedents and ancient customs. However, we have forgotten the name "furniture car" and "woodenware car," so why not forget the name "Automobile Car?"

It has been thoroughly demonstrated by the manufacturer and dealer in automobiles that he does not require closed equipment for transporting his product for the reason that they have used and are still using open top trucks for transporting the new automobiles in addition to driving cars from the manufacturer to the dealer.

Since logging operations, pole, and coal shipments have decreased nearly all carriers have a surplus of open top equipment in the shape of flat cars and low side gondolas. Why not load automobiles in this equipment in the same manner in which they are loaded on these long automobile trucks one meets on the highway?

The rates and minimums could then be adjusted to give the truck interests something to compete with instead of being in control of the business under our present strict adherence to old time methods.

C. F. RICHARDSON,
General Manager, Winona R. R.

How Much Is Known About "Highway Tax Costs"

NEW YORK.

TO THE EDITOR:

In view of the assumption of many correspondents that publications of the National Automobile Association can be taken as being absolutely dependable, it seems worth while that an analysis be made of the 1931 edition of "Highway Tax Costs," by John E. Walker, which has been published recently. This publication shows how little the automobile people, themselves, know about the actual costs of highways, taxes paid by the various vehicles and the wear and tear of these vehicles.

The pamphlet is a curious hodge-podge of figures, charts, contradictory statements and assertions. A good many of the figures are based on the reports of the Bureau of Public Roads of the U. S. Department of Agriculture but this latter report is based on reports of 48 different states which, presumably, keep their accounts according to 48 different methods.

On page 27 of this booklet, there is a statement that some 2,640,000 trucks paid an average of \$21.58 for registration but this does not show the difference in taxation on heavy as compared with light vehicles. On the previous page, 26, there is a table giving the average taxes on 3-ton trucks as of January 1, 1930, which purports to be \$298.22 for vehicles with solid tires and \$260.68 for vehicles with pneumatic tires. These figures are averaged for the 48 states and not for the number of vehicles. The lowest tax appears to be Missouri, with the highest tax in Florida. However, the states with the largest population and, therefore, presumably the largest number of trucks seem to average a very low tax. New York State \$52; Pennsylvania \$90; Illinois an average of \$205 and California \$750. On this same page the average gasoline tax paid per truck is assumed to be \$190.10 but in the figure given above the total average gasoline consumption for common carrier vehicles is estimated at an average of 5,000 gallons while on page 23 it is stated that the gasoline tax averages \$3.22 which on an aver-

age of 5,000 gallons would amount to \$161 or fully 20 per cent less than the tax of \$190.10 previously mentioned.

Page 30 of the document refers to a study of 6.55 miles of highway No. 1, between New Haven and Milford, Connecticut. The cost of this is estimated at about \$840,000 or about \$130,000 per mile and the annual maintenance charges, including what is called annuity for periodic maintenance, amount to about \$6,000 per mile.

There is on page 31 a reference to a study of a 26.3 mile section of highway between Ames and Des Moines, Iowa, the cost of which is estimated at about \$49,500 per mile while the annual-maintenance charge and the cost of periodic surface treatment is estimated at about \$375 and \$300 per mile respectively. At this rate, periodic maintenance or what is generally known to accountants as depreciation and replacement, is estimated at a cost of about six-tenths of one per cent which would mean an average life of the road of about 180 years.

On the front page of this interesting pamphlet there is a sentence: "Registration and gasoline taxes on motor vehicles now equal total expenditures for state, on main highways and almost twice maintenance cost of all state and local highways."

The figures given on page 8 which correspond with those published by the Bureau of Public Roads of the U. S. Department of Agriculture, are given as follows:

For motor vehicle taxes	\$278,092,000
For gas tax	287,258,000

or an aggregate of about \$565,000,000. According to the Department of Agriculture the total expenditures for State highways during the year 1929 were just a trifle short of \$900,000,000 or \$235,000,000 more than the amount above mentioned.

The total amount expended for local roads was a little short of \$645,000,000 while the total amount collected from gasoline and license taxes for this purpose was but about \$122,380,000; less than one-half of the maintenance cost of \$260,477,000, in accordance with the same authority.

It seems useless to pursue this subject much further because most of the readers of the *Railway Age* do not want to be burdened with detailed figures.

There is considerable denial on part of the owners of heavy vehicles about the hammer blow of a heavy machine. However engineers of the Bureau of Highways have stated that it is the heavy vehicles which cause the hard wear and tear on the roads. Just how much greater the wear caused by these vehicles is theoretical to a considerable extent. However, there are ways of definitely ascertaining this by measuring the miles of vehicles over some one mile of a highway over which any weight machine is allowed to pass and measuring an adjacent mile over which only light machines might be allowed to pass; or heavy machines might be detoured.

Next, as to the total expenditures on highways, according to the same authority for the year 1929, the aggregate was about \$1,445,000,000. It is impossible from the statistics to figure out the total mileage built during 1929 because the figures are divided under two headings; one, total miles being improved and surfaced; the other, earth roads improved (graded and drained). These earth roads, local and state highways, are considerably more than one-half the total.

According to this same pro-motor pamphlet (page 4) during the year 1927 the railroads contributed \$35,500,000 toward highway taxes.

An official commission of the British government has just studied the same question and has recommended that motor vehicles using the highways for revenue should pay two-thirds of all costs connected with the highways. While this is more than the amount I suggested, in my article in the *Railway Age* of January 31, it is probably also fairer.

Let us find out, through some impartial authority, just what constitutes the elements of cost; that is, interest, sinking fund, replacement, upkeep and the equivalent of taxes; then let us determine in what way such highway rental should be distributed according to weight and kind. Undoubtedly the mileage basis is proper but all the other details must be worked out.

F. J. LISMAN

Books and Articles of Special Interest To Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,
Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Canada and Her Wheat Pool, by Sydney S. Gampbell. A study of the history and hopes for the pool and the results. 56 p. Pub. by Dawson Richardson Publications, Ltd., Winnipeg, Canada. 25 cents.

Chesapeake & Ohio Railway. A current study. 6 p. Pub. by Evans, Stillman & Co., New York City. Apply.

Depreciation Studies—Preliminary Report of the Bureau of Internal Revenue, Treasury Department, January, 1931. "These statistics represent the results of the bureau's depreciation studies over a 5-year period, made with the co-operation of a number of trade associations and corporations, and covering a range of years beginning prior to the adoption of the sixteenth amendment to the United States Constitution and extending down to date. It is expected that revisions will become necessary in the light of changing experiences. The bureau will therefore welcome the benefit of the continuing experiences of taxpayers as well as information disclosing any material errors in this compilation." p. 2. Building, railway, highway, motor vehicle, office equipment, canal, snow fence, and other figures will be of interest. "Probable useful life" and depreciation rate are given. 34 p. Pub. by U. S. Govt. Print. Off., Washington, D. C., 5 cents.

A Review of Railway Operations in 1930, by Julius H. Parmelee. Special series No. 57, "Reprinted by permission from *Railway Age* for January 3, 1931, and figures revised to February 20, 1931." 36 p. Pub. by Bureau of Railway Economics, Washington, D. C. Apply.

The Signal in the Cab 1881-1930. An illustrated account of the development of cab signalling. The non-technically minded will like the maps and the fine double-page picture of the Horseshoe Curve on the Pennsylvania. 51 p. Pub. by Union Switch & Signal Company, Swissvale, Penna.

Periodical Articles

Ladies in Waiting. Reproduction of an etching of three locomotives by Otto Kuhler, with this caption "Someone has said that dinosaurs disappeared because the world became too clean for them. For the same reason—and others—the steam locomotive may suffer a similar fate, but its passing will be mourned by many . . ." *Technology Review*, February 1931, p. 226.

Mare's Nest at Washington, by Lawrence Sullivan. "How much freight is transported annually in the United States? . . . coastwise freight is tabulated by the Commerce Department; intercoastal traffic by the Panama Canal Office, War Department; river tonnage by the Inland Waterways Corporation, War Department; foreign tonnage by the Shipping Board; and, finally, land-line freight tonnage by the Interstate Commerce Commission—exclusive, of course, of movements over the government-owned Alaskan Railroad, which is administered by the Department of the Interior . . . The economist who seeks precise information on employment conditions must gather segments of the story from seven different agencies scattered over an area of approximately five miles . . ." p. 346-347. *Atlantic Monthly*, March 1931, p. 339-348.

On One Side, by A. W. Somerville. A short story of three trains and assorted railroaders in the big snow of 1918. *Saturday Evening Post*, February 28, 1931, p. 36, 38, 49-53.

Panama Canal Traffic During Calendar Year 1930, Segregated by Nationality of Vessels and Traffic for Calendar Year 1930. Includes figures by months for 1929 and 1930 and annual totals 1914-1930. *Panama Canal Record*, January 28, 1931, p. 364-372.

Wanted—Well-Trained, Orderly Minds, by L. F. Loree. An interview by Arthur H. Little on the "qualities and characteristics which future seniors will require—not merely in railroading, but in business in general—and for what traits and symptoms the seniors shall be vigilant in their search for executive timber." p. 182. *System*, March 1931, p. 181-184.

Looking Backward . . .

Fifty Years Ago

The Pennsylvania on March 8 announced that it had acquired a controlling interest in the stock of the Philadelphia, Wilmington & Baltimore [now a part of the former road] extending between Philadelphia, Pa., and Baltimore, Md., thus forestalling the tentative arrangement of the Baltimore & Ohio for the purchase of this railroad and the acquisition of its own entrance into Philadelphia from Baltimore.—*Railway Age*, March 10, 1881.

The California Railroad Commission have passed resolutions adopting a schedule of passenger fares between all the leading points in the state. The rates vary from 2.2 to 5 cents per mile. It is provided that stop-over checks must be given to passengers on application, and that rates shall be uniform over each section of line designated by the commission. These sections, however, include only parts of railroads. The Southern Pacific is allowed on various sections of its line to charge 2-2/7, 3, 3 1/2, 4 1/2 and 5 cents per mile, the lowest rate being between Los Angeles, Cal., and Wilmington, and the highest between Los Angeles and Yuma, Ariz.—*Railroad Gazette*, March 4, 1881.

Twenty-Five Years Ago

By general agreement the rate bill has been held up in the United States Senate pending final action on the question of statehood for the four surviving territories. The general debate on the bill is expected to begin about March 12; when it will end nobody is willing to predict. Two specific propositions for railways in Alaska are pending in Congress now. One provides for chartering the Alaska Railway [now the approximate route of the Copper River & Northwestern], giving that concern authority to construct a line from Cordova Bay to Eagle. The other provides for railway construction in Alaska under general terms, with government guarantee of interest on bonds at 4 per cent on an issue of \$30,000 per mile.—*Railway Age*, March 9, 1906.

The New York, New Haven & Hartford has reduced regular passenger fares on four of its divisions to 2 cents per mile. This is to be followed by a similar reduction on the entire system.—*Railroad Gazette*, March 9, 1906.

Ten Years Ago

The power of the Interstate Commerce Commission to prescribe state wide schedules of rates for intrastate traffic for the purpose of removing discrimination against interstate commerce, was contested and defended in briefs filed in the United States supreme court on February 28 by representatives of 42 state railroad commissions and of the railroads. The test case is an appeal by the railroad commission and state authorities of Wisconsin from a decision of the federal district court for the eastern district of Wisconsin, enjoining the state from interfering with the establishment by the railroads of the increased passenger fares ordered by the Interstate Commerce Commission.—*Railway Age*, March 4, 1921.

The New York Central has filed with the Interstate Commerce Commission an application for authority and for a certificate of public convenience and necessity for the construction of a union passenger station at Cleveland, Ohio, for the use of the New York Central, the Cleveland, Cincinnati, Chicago & St. Louis and the New York, Chicago & St. Louis. The three railroads also ask for permission to enter into a contract with the Cleveland Union Terminals Company for the construction and operation of such a terminal on the Public Square.—*Railway Review*, March 5, 1921.

Odds and Ends . . .

S. P. Hotel Razed

Railway men who have worked in Arizona will remember the Southern Pacific Hotel at Yuma, which has served the public for 51 years. Now, however, having outlived its usefulness, it is being torn down to make way for the progress of civilization.

Heroic Operator

C. E. Smith, operator for the Norfolk & Western at Vesuvius, Va., has been awarded a medal and \$1,000 by the Carnegie Hero Fund Commission in recognition of the fact that he saved the life of a woman recently at great risk to his own life.

Another President Honored by the Pope

Later dispatches carry the information that James E. Gorman, president of the Chicago, Rock Island & Pacific, was also created a Knight of Malta by the Pope at the same time as L. A. Downs, and J. J. Pelley, previously mentioned in these columns.

Oldest Mittens?

William Boughton, crossing flagman for the Illinois Central at Minonk, Ill., has a pair of knitted woolen mittens for which he claims a world record. He has been wearing them constantly each winter for 44 years, and they are still in serviceable condition.

Railways Crossing Streams

TO THE EDITOR:

The Crawfordville branch of the St. Louis division of the Pennsylvania crosses Little Raccoon Creek 17 times in 7.7 miles and 13 times in 2.6 miles. The same stream crosses the Sunderland branch 11 times in 3.5 miles.

A. B. WANG.
Masonry Inspector.

Twins on Opposite Runs

Possibly the only case in the country where twins are enginemen on opposite runs is found on the Chicago division of the Baltimore & Ohio. John L. Cogley and James E. Cogley are the enginemen in question, and for some years past they have been in charge of trains 31 and 32, running between Garrett, Ind., and South Chicago.

Brother Vets

The Seidel brothers, retired employees of the Altoona shops of the Pennsylvania, claim the service record for three brothers. Their combined service totals 146 years. Charles and John were both machinists with service records of 53 and 51 years respectively, while Joseph was a car builder and had only 42 years service at the time of his retirement.

A Nine-and-one-half Foot Railroad Ticket

D. K. Wallace, business specialist in the Bureau of Foreign and Domestic Commerce, Department of Commerce, believes he has the longest railroad ticket ever sold in Washington. It is 9½ ft. long, contains 51 coupons and cost \$433.38. Mr. Wallace is about to start on a four-months' survey trip on which he will visit firms located in 60 cities in every state of the Union except in New England, and desired to have all the details of his ticket arrangements and stopovers worked out in advance. By taking advantage of certain winter tourist and other special rates, he will make a considerable saving as compared with the use of scrip. The trip is being financed by the International

Stamp Manufacturers' Association, which is co-operating with the department in a survey of practices affecting the marking devices industry.

And They Are As Good As New

A railway station, believed to be the world's oldest in the point of the date of the manufacture of the materials from which it is constructed, has just been completed at Tell Billah, Mesopotamia, for the use of the expedition of the University of Pennsylvania Museum and the American School of Oriental Research at Bagdad. Built on the Khorshbad Railroad almost entirely of bricks made more than 3,500 years ago in the reign of King Ashurnasirpal, the station will be used as a shipping point and storage house for the objects found in the excavation at Tell Billah.

Oldest Typewriter?

For the past 28 years James Gedding has been employed as telegrapher by the Pennsylvania at Reynoldsville, Pa. During all of that time he has "pounded out" messages on what he believes to be the typewriter with the longest service record on any railroad in the country. It is a "blind" Smith-Premier No. 2, which has been in use every day of the year since it was purchased.

World's Shortest Railroad Ordered Scrapped

What is said to be the shortest railroad in the world, running for one and one-half miles between the docks and warehouses on Governors Island, New York harbor, has been condemned by the United States Army and will be torn up. Built during the war to transport stores and machinery on the island, the railway, with the official name of Governors Island Railroad, has gradually decreased in usefulness. Included in the rolling stock to be offered for sale will be Big Bertha, the wheezing locomotive whose life in the last 13 years has been one short turn after another, hauling coal from the piers to the quartermaster's warehouse, puffing along the shore line with machinery for the shops or standing idle for hours. Besides, three flat cars and a derrick will be sold to the highest bidder. Until a few months ago, the G. I. R. R., had a regular crew, even a track foreman and a dispatcher. The exact length of track to be torn up is 1¼ miles. When built during the war the system had eight miles of tracks.

Feet on Seats

The administration of the German Railways complains that the traveling public is more inclined to make itself comfortable at the expense of the upholstery than it was some years ago. In other words, passengers are using the upholstered seats as rests for their shod feet to a far greater extent than did their better-behaved forefathers. The practice is to be stopped, and, with this object in view, the officers have been instructed to deal with offenders much more strictly than hitherto. There seems to be no objection to a passenger putting his feet on a seat, provided that: (1) The passenger's feet are not encased in boots or shoes, or (2) a newspaper, or some other material which will serve the same purpose, is placed between the upholstery and the boots or shoes in which a passenger's feet may be encased. Disregard of these prohibitions is likely to result in severe penalties being inflicted upon the erring passenger.

Only first and second-class passengers will be affected by the "preserve the upholstery" campaign, for third-class passengers are provided with wooden seats. Apparently, a third-class passenger may rest shod feet upon the wooden seats to his heart's content. There may be some trouble when a recently-arrived passenger wishes to sit down on the spot occupied by the said shod feet, but that, apparently, is no concern of the railway officials. The passengers must settle it among themselves.

—*Railway Gazette.*

NEWS

Cab Signals Allowed in Train Control Territory

System authorized on P.R.R. locomotives running over more than one division

The Interstate Commerce Commission, in a decision by Commissioners Eastman, McManamy and Lee, has authorized the Pennsylvania to operate, on locomotives running over more than one division, the Coder system cab signal, with whistle and acknowledgment, with four indications.

Commissioner Eastman, in a separate statement, agrees to the granting of this permission, "largely for experimental purposes" but says that he is not convinced that the Coder system represents the last word in train protection. He holds that the automatic stop is an additional element of protection and says that objections to the automatic stop which have been presented are capable of being overcome.

The application of the road refers to five runs which include automatic train stop territory, cab signal territory (the cab signals installed by the road voluntarily) and unequipped territory. These runs are from Columbus, Ohio, to Harrisburg, Pa., 435 miles; New York to Atlantic City, N. J., 144 miles; New York to Point Pleasant, N. J., 65 miles; Washington, D. C. to Atlantic City, 202 miles; and Philadelphia to Long Branch, 94 miles.

The road presented the testimony of officers and of nine locomotive engineers, the latter having run engines with both types of devices; all to the effect that the cab signal is more satisfactory, from an operating standpoint, and in certain respects provides greater safety than the automatic train stop. No person appeared in opposition to the petition of the railroad and the report says that the testimony is conclusive, that the cab signal is operating in general more satisfactorily than the automatic train stop; and that the cab signals provide equal or greater safety.

The average cost per locomotive of the apparatus for train control is \$2,431 and for cab signals \$1,810; maintenance cost of cab signals 33 per cent less than for the other. The testimony, says the report, is very convincing that the cab signal will promote safety, efficiency and economy of operation. On this basis, and also in the interest of the further development of the art of signaling, the order is issued, "providing opportunity to acquire additional experience."

The order, which is a relaxation of

"The tendency will probably be to raise the income taxes on the commercial users of the highways. Both the motorist and the general public are interested in these laws. Buses and trucks damage highways much more than passenger vehicles. The motorist is concerned in having the owners of these vehicles pay taxes in proportion to such damage and to the value which they derive from the use of the public highways."

—From an article by Harry Tucker, Professor of Highway Engineering, North Carolina State College, appearing in the New York Times.

the present requirements on those divisions where automatic train control has been installed by order of the commission, holds "until further order of the Commission." The original requirement that locomotives assigned to these A. T. C. divisions shall be equipped with train stop devices, is not modified.

Two Cents a Mile

The Southern Pacific lines in Texas and Louisiana, on March 1, established round trip fares to all points equal to a fare and one-third or two cents a mile. The tickets have a return limit of 30 days and permit stopovers at all points.

Resolution for Transportation Investigation Fails

The resolution introduced into Congress by Senator Fess and Representative Parker to direct the Interstate Commerce Commission to conduct an investigation of the various forms of transportation in competition with the railroads and to report recommendations for legislation in December failed of passage in the last hours before Congress adjourned on March 4. It had been favorably reported by both Senate and House committees and Chairman Couzens of the Senate committee made an effort to have it considered in the Senate but Senators Copeland, Shipstead and La Follette said they desired to offer amendments to the resolution and its consideration was deferred on objection by Senator Smoot. Up to the hour of going to press the Interstate Commerce Commission had not volunteered to make the investigation anyway. The Senate in its closing hours adopted a resolution introduced by Senator Howell calling on the Secretary of the Treasury to report respecting the indebtedness of each railroad to the government under the provisions of section 210 of the transportation act.

Capital Outlay in 1930 Totaled \$872,608,000

Railway expenditures last year greater than those of any year since 1926

Capital expenditures made by the Class I railroads in 1930 for new equipment and additions and betterments to property were greater than those for any year since 1926, according to complete reports for the year just received from the carriers by the Bureau of Railway Economics. Capital expenditures actually made in 1930 totaled \$872,608,000, an increase of \$18,887,000 above such expenditures in 1929 and an increase of \$195,943,000 above those in 1928. They also represent an increase of \$101,056,000 above those in 1927, but a reduction of \$12,478,000 under those of 1926.

Unexpended authorizations representing physically uncompleted work carried over into 1931 from 1930 amounted to \$396,679,000 compared with \$579,005,000, the amount of carry-over found on the books of the railroad companies on January 1, 1930.

The amount of capital expenditures devoted in 1930 to purchase of equipment was \$328,269,000 compared with \$321,306,000 in 1929. This was an increase of \$6,963,000 or 2.2 per cent above the preceding year. Roadway and structures expenditures aggregated \$544,339,000 compared with \$532,415,000 in 1929, an increase of \$11,924,000 or 2.2 per cent. Capital expenditures for locomotives amounted to \$88,494,000 compared with \$70,660,000 made in 1929; for freight cars, \$181,028,000 compared with \$191,917,000; for passenger cars, \$44,791,000 compared with \$38,670,000 in the preceding year. For "other equipment," capital expenditures amounted to \$13,956,000 compared with \$20,059,000 in 1929.

Capital expenditures for additional track in 1930 amounted to \$114,486,000 compared with \$129,148,000 in 1929; for heavier rail, \$47,101,000 compared with \$46,862,000; for shops, engine houses, machinery and tools, \$29,179,000 compared with \$36,561,000. Expenditures for additional ballast showed a reduction, having been \$11,455,000 in 1930 compared with \$17,049,000 in 1929. For all other improvements, \$342,118,000 was expended in 1930, compared with \$302,795,000 in 1929.

Capital expenditures since the beginning of the railways' program for in-

(Continued on page 515)

Annual Reports

Synopsis of Annual Report, Reading Company, Year Ended December 31, 1930

PHILADELPHIA, PA., February 26, 1931.

To the Stockholders of Reading Company:

The Board of Directors submits herewith its 33rd Annual Report.

The income for the year ended December 31, 1930, was as follows:

	1930
Railway Operating Revenues.....	\$86,922,614.39
Railway Operating Expenses.....	72,160,860.94
Net Revenue from Railway Operations.....	\$14,761,753.45
Railway Tax Accruals.....	\$2,292,960.35
Uncollectible Railway Revenues.....	4,711.19
Total Taxes and Uncollectible Railway Revenues.....	\$2,297,671.54
Railway Operating Income.....	\$12,464,081.91
Other Operating Income.....	180,425.10
Net Railway Operating Income.....	\$12,644,507.01
Nonoperating Income.....	4,921,498.34
Gross Income.....	\$17,566,005.35
Deductions from Gross Income.....	9,103,378.69
Net Income.....	\$8,462,626.66
Income Applied to Sinking and Other Reserve Funds....	\$42,456.27
Income Balance Transferred to Profit and Loss.....	\$8,420,170.39

Elimination of Grade Crossings

The most important grade crossing elimination project now being prosecuted on the Reading System is that on the Chestnut Hill Branch. The work between Sedgwick and Gravers stations, necessary for the abolition of the Willow Grove Avenue and Mermaid Lane crossings, was under way at the close of the year with one track on the new grade in operation. This project also involved the construction of a new passenger station at Wyndmoor and a new coal yard at Chestnut Hill.

Practically the entire task of eliminating the grade crossings in the Wissahickon-Manayunk district was completed at the close of the year, only some minor street paving remaining to be done. The high level tracks were opened throughout for operation on September 12, 1930.

Construction commenced prior to the close of the year on a new bridge on account of the elimination of three grade crossings at Penllyn, and on a new bridge at Camp Hill to provide for the abolition of two grade crossings and the vacation of an old overhead bridge.

The new parallel highway between Trevoise and Somerton, Pa., constructed for the purpose of eliminating an overhead bridge and two grade crossings, was completed and opened September 5, 1930.

Electrification

Construction work on the electrification of suburban lines to Lansdale, Hatboro, Langhorne and Chestnut Hill, authorized by the Board of Directors October 25, 1928, is progressing rapidly and is up to schedule. During the year 1930, additional work has been authorized by the Board of Directors, the main items of which are as follows:

(1) Extension of the electrification from Langhorne to West Trenton and from Lansdale to Doylestown.

(2) Changes in signal system, Jenkintown to West Trenton, Glenside to Hatboro, Lansdale to Doylestown and Jenkintown to Lansdale.

During the year orders for all major items of material such as multiple unit cars, substation apparatus and line materials were placed. Delivery of the seventy (70) multiple unit cars is expected to start about March 1st. Practically all of the substation apparatus and line material has been received.

The entire construction program including foundations, structures, wiring, substations, etc., is being carried on with

Company forces. At the present time wire work is progressing on all branches of the electrified territory and it is expected that electrified passenger train service will commence some time in the early Summer of 1931.

During the past year the electric car shop for the inspection and repair of the suburban cars has been completed at Wayne Junction and at the present time is being used as a storehouse for electrical material.

Equipment

All of the equipment mentioned in the 1929 annual report, for which contracts for delivery during 1930 had been made, together with the following additional units, was received and placed in service:

2 barges,
1 trailer, and
1 ballast cleaner.

Contracts were entered into during the year for the following equipment to be delivered in 1931:

10 Santa Fe locomotives,
20 steel caboose cars, and
28 roadway motor cars.

Arrangements were also made for the acquisition during 1930 and 1931 of the following additional equipment through the medium of Reading Company Equipment Trust, Series "M," dated May 1, 1930:

2,000 steel box cars,
10 steel baggage cars,
10 locomotive tenders,
61 steel passenger coaches, motor driven,
7 steel passenger and baggage cars, motor driven, and
2 steel passenger, baggage and mail cars, motor driven.

Mr. C. S. W. Packard is acting as Lessor, and The Pennsylvania Company for Insurances on Lives and Granting Annuities, Philadelphia, as Trustee under this indenture. Certificates to the amount of \$7,080,000 par value, bearing interest at the rate of 4½% per annum, and maturing serially at the rate of \$236,000 each six months from November 1, 1930, to May 1, 1945, were issued pursuant to authority of the Interstate Commerce Commission in Finance Docket No. 8240.

Equipment Trust Obligations

At the close of the fiscal year ended December 31, 1930, there were outstanding Equipment Trust obligations, including certificates issued under Reading Company Equipment Trust, Series "M," mentioned above, to the extent of \$15,489,000. These obligations were as follows:

Series	Outstanding Dec. 31, 1929	Payments During Year	Outstanding Dec. 31, 1930
H	\$190,000	\$190,000	\$
I	1,800,000	600,000	1,200,000
J	2,500,000	830,000	1,670,000
K	3,200,000	800,000	2,400,000
L	4,125,000	750,000	3,375,000
*M	7,080,000	236,000	6,844,000
	\$18,895,000	\$3,406,000	\$15,489,000

Of the \$15,489,000 Equipment Trust Certificates outstanding December 31, 1930, \$6,962,000 were owned by Reading Company, and \$26,000 by subsidiary companies.

* Issued under date of May 1, 1930.

Federal Valuation of Railroads

The very detailed reports required by the Interstate Commerce Commission of changes made in the property from June 30, 1917, to December 31, 1927, for the purpose of bringing the valuations up to December 31, 1927, have been completed during the year for many of the companies in this System.

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On July 18, 1930, the Interstate Commerce Commission issued a tentative report and an order directing The Iron-ton Railroad Company (owned jointly by Reading Company and Lehigh Valley Railroad Company) to pay "the sum of \$88,717.69 which is the unpaid balance of excess net railway operating income ***." This sum is in addition to the "recapture" payments which had previously been made under protest and covers the period from August 31, 1920, to December 31, 1924. Protests were made in behalf of the Iron-ton against this payment, and a hearing is now in progress in

respect to this matter before an examiner of the Interstate Commerce Commission.

During the year 1930, the Reading System expended the sum of \$123,551.72 for the continuance of the physical valuation of its property on account of Federal Valuation under Act of Congress approved March 1, 1913, making the total expenditure to December 31, 1930, for this purpose, \$1,581,237.32.

Since the close of the year the Interstate Commerce Commission has fixed, as the final value of the Reading System for rate-making purposes, the amount of \$233,755,958 as of June 30, 1917.

Profit and Loss Account

For Year Ended December 31, 1930

Account	Dr.	Cr.
Credit balance December 31, 1929		\$9,461,854.58
Balance transferred from income for the year ended December 31, 1930		8,420,170.39
Profit on road and equipment sold		65,842.67
Unrefundable overcharges		27,343.26
Donations for construction of sidings		97,675.73
Miscellaneous credits		170,032.70
Dividend appropriations of surplus	\$8,397,602.00	
Surplus appropriated for investment in physical property	97,675.73	
Loss on retired road and equipment	329,507.21	
Miscellaneous debits	1,831,096.30	
Credit balance December 31, 1930	7,587,038.09	
Total	\$18,242,919.33	\$18,242,919.33

GENERAL BALANCE SHEET—ASSETS

	December 31, 1930
INVESTMENTS:	
Investment in road and equipment	\$313,089,702.47
Improvements on leased railway property	40,240,825.15
Deposits in lieu of mortgaged property sold:	
Cash	\$1,362.64
Securities	\$2,447,653.76
Less Company's securities	1,685,600.00
762,053.76	
763,416.40	
Miscellaneous physical property	12,352,933.51
\$366,446,877.53	
INVESTMENTS IN AFFILIATED COMPANIES:	
Stocks	\$23,160,368.48
Bonds	14,878,839.57
Advances	8,322,788.59
\$46,361,996.64	
OTHER INVESTMENTS:	
Stocks	\$28,164,098.19
Bonds	9,193,412.50
Notes	
Advances	195,030.56
Miscellaneous	344,043.27
\$37,896,584.52	
Total Investments	\$450,705,458.69
CURRENT ASSETS:	
Cash	\$8,632,411.05
Special deposits	38,842.20
Loans and bills receivable	2,602,536.71
Traffic and car-service balances receivable	1,110,855.48
Net balance receivable from agents and conductors	1,291,197.51
Miscellaneous accounts receivable	1,482,809.55
Material and supplies	6,893,819.50
Interest and dividends receivable	1,081,830.07
\$23,134,302.07	
DEFERRED ASSETS:	
Working fund advances	\$48,343.50
Insurance and other funds	\$1,079,741.53
Less company's securities	411,000.00
Other deferred assets	150,118.16
\$867,203.19	
UNADJUSTED DEBITS:	
Rents and insurance premiums paid in advance	\$93,545.13
Discount on funded debt	432,927.95
† Other unadjusted debits	2,778,156.05
\$3,304,629.13	
Total Unadjusted Debits	\$3,304,629.13
Securities issued or assumed—unpledged	\$11,518,883.34
Securities issued or assumed—pledged	1,448,000.00
\$12,966,883.34	
Grand Total	\$478,011,593.08

† Includes \$2,278,954.93 of the proceeds from the issue of Equipment Trust Certificates, Series "M," in custody of Trustee for payment of equipment under construction.

Segregation

A Certificate of Interest in one share of the Philadelphia and Reading Coal and Iron Corporation was presented to the Wilmington Trust Company, Wilmington, Delaware, for redemption at \$29.50 per share, during the year 1930, in accordance with the order of the United States District Court, reference to which was made in the 1928 Annual Report. Certificates of Interest in 386 shares of the Coal Corporation remained outstanding and unredeemed on December 31, 1930.

Atlantic City Railroad Company

The \$75,000 Purchase Money Mortgage 4½% Bonds of this Company, dated April 2, 1900, secured on certain real

GENERAL BALANCE SHEET—LIABILITIES

	December 31, 1930
STOCK:	
First preferred	\$28,000,000.00
Second preferred	42,000,000.00
Common	70,000,000.00
Total Stock	\$140,000,000.00
Held by or for Company	\$49,050.00
\$139,950,950.00	
LONG-TERM DEBT:	
Funded debt secured by mortgage	\$112,320,304.76
Funded debt secured by stock collateral	24,295,000.00
Equipment trust obligations	15,489,000.00
Total Funded Debt Unmatured	\$152,104,304.76
Non-negotiable debt to affiliated companies	320,040.50
Total Long-Term Debt	\$152,424,345.26
CURRENT LIABILITIES:	
Traffic and car-service balances payable	\$1,776,210.63
Audited accounts and wages payable	7,283,367.59
Miscellaneous accounts payable	52,114.05
Interest matured unpaid	1,789,907.45
Dividends matured unpaid	49,814.00
Funded debt matured unpaid	37,888.90
Unmatured dividends declared	1,819,488.50
Unmatured interest accrued	609,579.22
Unmatured rents accrued	324,866.07
Other current liabilities	47,174.35
Total Current Liabilities	\$13,790,410.76
DEFERRED LIABILITIES:	
Other deferred liabilities	\$593,069.52
UNADJUSTED CREDITS:	
Tax liability	\$2,792,188.80
Insurance and casualty reserves	871,142.56
Accrued depreciation—Road	9,755,848.38
Accrued depreciation—Equipment	60,059,020.74
Other unadjusted credits	463,424.00
Total Unadjusted Credits	\$73,941,624.48
CORPORATE SURPLUS:	
Additions to property through income and surplus	\$103,000,588.31
Funded debt retired through income and surplus	1,738,000.00
Total Appropriated Surplus	\$104,738,588.31
Profit and loss credit balance	\$7,587,038.09
Total Corporate Surplus	\$112,325,626.40
Grand Total	\$478,011,593.08

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estate in the City of Camden, N. J., matured on April 1, 1930, and were retired through the issue at par of \$75,000 First Consolidated Mortgage 4% Bonds of the Atlantic City Railroad Company, maturing July 1, 1951, which had been reserved for this purpose. The issue of these bonds was authorized by the Interstate Commerce Commission in Finance Docket No. 8122, and the entire amount thereof was guaranteed and acquired by Reading Company pursuant to authority of the Commission.

The North East Pennsylvania Railroad Company

This Company's issue of \$400,000 First Mortgage 5% Bonds dated April 1, 1890, matured April 1, 1930, and, by authority of the Interstate Commerce Commission, in Finance Docket No. 8123, were extended for a period of twenty-five years at 4½% per annum. The entire amount of this issue is owned by Reading Company and, pursuant to authority of the Commission, the bonds were guaranteed by it both as to principal and interest.

Peoples Railway Company

During the year 1930, the Peoples Railway Company sold to the East Penn Traction Company a portion of its street railway line in the City of Pottsville. The sale was approved by the Public Service Commission of Pennsylvania. The net proceeds of the sale were applied to the redemption of bonds of the Company, the entire amount of which were owned by Reading Company.

The Philadelphia Grain Elevator Company

This Company issued to Reading Company, at par, \$15,000 additional of its First Mortgage 5% Bonds in reimbursement of certain capital charges incurred by Reading Company in connection with the construction of the new grain elevator facilities at Port Richmond, Philadelphia, referred to in previous annual reports. The total amount of bonds issued on account of these facilities is \$2,649,000.

Reading, Marietta and Hanover Railroad Company

The Reading, Marietta and Hanover Railroad, extending from a connection with the Reading and Columbia Railroad at Marietta Junction to Chickies, Penna., a distance of 6.17 miles, has been abandoned, under authority of the Interstate Commerce Commission, in Finance Docket No. 8024, and the Public Service Commission of Pennsylvania. The entire capital stock of this Company had been owned by the Reading and Columbia Railroad Company, a subsidiary of Reading Company.

The Reading, Marietta and Hanover Railroad Company has been dissolved under a decree of the Court of Common Pleas of Philadelphia County No. 4, entered December 22, 1930.

Reading Transportation Company

In addition to the motor coach routes mentioned in the 1929 annual report, with a total mileage of 592.6, as being in operation at the close of the year 1929, the Reading Transportation Company commenced operations on the following routes during 1930:—

Philadelphia, Pa., to New York City.....	107.2 miles
Jenkintown, Pa., to Chalfont, Pa.....	16.0 miles
Fox Chase, Pa., to North Glenside, Pa.....	8.0 miles
Jenkintown, Pa., to Richboro, Pa.....	12.9 miles
Fox Chase, Pa., to Richboro, Pa.....	11.9 miles
Willow Grove, Pa., to Southampton, Pa.....	8.9 miles
Philadelphia, Pa., to Wildwood, N. J.....	89.4 miles
Mt. Carmel, Pa., to Mt. Carmel Junction, Pa.....	2.0 miles
Total	256.3 miles
Total route mileage in operation.....	848.9

The Philadelphia-New York route is operated in conjunction with the Jersey Central Transportation Company.

In addition to the above motor coach routes, motor-trucking service was inaugurated between Reading, Pa., and Bridgeport, Pa., a distance of 55.6 miles, under contract with Reading Company, to transport less-carload freight between those points.

The Reading Transportation Company had in operation at the close of 1930, 77 motor coaches, and carried during the year 1,248,144 passengers.

The Motor Coach Terminal in the rear of Reading Terminal, Philadelphia, Pa., was completed and opened to the public on October 1, 1930.

Arrangements were consummated with the Colonial-Atlantic-Pacific Stages, operating a nation-wide system of motor coach transportation, whereby tickets issued by either company will be accepted for transportation on the coaches of the other company to any destination reached by its lines or connections.

Under this arrangement patrons are afforded motor coach connections to points in 42 States and Eastern Canada.

Swedes Ford Bridge Company

Effective January 2, 1930, the lease of this company's bridge over the Schuylkill River between Bridgeport and Norristown, Pa., which Reading Company and its predecessor companies had held for many years, was assigned to the Federal Bridge Company. This bridge was of no practical value to Reading Company, as it has in recent years been operated solely for the accommodation of pedestrians and highway vehicles crossing the river at this point. This assignment was approved by the Public Service Commission of Pennsylvania. Reading Company continues to hold a majority interest in the capital stock of the Swedes Ford Bridge Company.

Trenton-Princeton Traction Company

This Company owns and operates an electric street railway line between Trenton and Princeton, N. J., a distance of approximately 12.5 miles, and connects with the railroad of Reading Company at Trenton, where for many years freight has been interchanged between the two carriers. By authority of the Board of Public Utility Commissioners of New Jersey and the Interstate Commerce Commission, in Finance Docket No. 8269, Reading Company acquired during the year the entire issue of \$200,000 capital stock and \$400,000 First Mortgage Bonds of this Company.

Funded Obligations

On July 1, 1930, Reading Company issued \$15,000,000 additional bonds, bearing interest at the rate of 4½% per annum, under the provisions of its General and Refunding Mortgage dated January 2, 1924, in order to reimburse its treasury, in part, for expenditures for additions and betterments during the period from January 1, 1924, to December 31, 1926, costing upwards of \$23,000,000. These bonds are designated as Series "B," and the issue thereof was approved by the Interstate Commerce Commission in Finance Docket No. 8377.

This was the only change in the Funded Indebtedness of the Company during the year except in respect to Equipment Trust Obligations. On December 31, 1930, the mortgage and collateral trust bonds outstanding amounted to \$128,562,871.42.

The Management extends its thanks to all the officers and employees of Reading Company with the assurance that their faithfulness to their duties and their loyalty to the service will always be appreciated.

By order of the Board of Directors.

AGNEW T. DICE,
President

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NEWS

(Continued from page 512)

creased efficiency of operation in 1923 have been as follows:

(000 omitted)			
1921.....	\$1,059,149	1927.....	771,552
1924.....	874,744	1928.....	676,665
1925.....	748,191	1929.....	853,721
1926.....	885,086	1930.....	872,608

Or a total of \$6,741,716,000, equal to

an average of \$842,715,000 per year. Expenditures in 1930, even in the face of a reduction in traffic and earnings, thus exceeded this average by \$29,893,000 and were exceeded by the expenditures of only three previous years—1923, 1924 and 1926.

Federal Barge Line on Illinois River

The Interstate Commerce Commission has issued a certificate authorizing

the federal barge line of the Inland Waterways Corporation to extend its operations to the Illinois river and has directed the railroads to join with it in the establishment of through routes and joint rates via Joliet, La Salle, Peoria and other ports on the Illinois river and all ports now served by the barge line on the Mississippi river south of the mouth of the Illinois, except where the

(Continued on page 520)

The Baltimore and Ohio Railroad Company

OFFICE OF THE PRESIDENT

BALTIMORE, Md., February 28, 1931.

To the Stockholders of
The Baltimore and Ohio Railroad Company:

The President and Directors submit herewith a preliminary condensed income statement, compared with the preceding year, together with balance sheet, as of December 31, 1930, and certain other general information which it is thought will be of interest.

The Annual Report in the customary form will be prepared and forwarded later to those stockholders who have advised or may advise the Secretary of the Company of their desire to receive a copy.

The net income for the year available for dividends and other corporate purposes, after the payment of interest, rentals, taxes and other fixed charges, was \$ 21,423,770. This is a decrease of \$7,344,138, compared with 1929.

After paying the 4% dividend on the Preferred Stock, there remained \$ 19,069,242, equal to \$7.44 per share on the amount of common stock outstanding during the year. Quarterly dividends at the annual rate of 7% were declared on the common stock, and amounted to leaving a surplus from the operations for the year of \$ 1,128,555.

The total accumulated surplus of your Company on December 31, 1930, was \$109,861,329,

a decrease, compared with December 31, 1929, of \$4,607,457, due principally to the charge to this account of the discount and commission on \$63,031,000 Thirty-year 4½% Convertible Gold Bonds, which were sold on March 11, 1930, through an offering to the holders of the stock of the Company, and to other adjustments.

During the year there was an increase in investment in road and real estate, etc., of \$ 14,571,408. New equipment was acquired at a cost of \$11,359,733 and old equipment retired in the amount of 1,700,454. Resulting in a net increase in Investment in Equipment of 9,659,279.

Total increased investment in property used in transportation service \$ 24,230,687

The following additional equipment was purchased: five all-steel dining cars, seven all-steel cafe and parlor cars, fifty all-steel coaches, 1,625 all-steel box cars, 300 all-steel hopper cars, 1,300 all-steel gondola cars, and twenty-seven pieces of marine equipment.

Nine passenger-train cars, 1,485 freight-train cars, 176 pieces of work equipment, one piece of floating equipment, and fourteen pieces of miscellaneous equipment, no longer suitable for modern and efficient service, were retired during the year.

Following the policy of your Company to provide greater comfort for its passengers, ten new coaches, with reclining

THE BALTIMORE AND OHIO RAILROAD COMPANY

Income Account

	1930	1929	Increase or Decrease	
			Amount	%
Revenue from freight transportation.....	\$173,706,337	\$205,489,402	\$*31,783,065	*15.47
Revenue from passenger transportation.....	18,567,622	22,138,627	* 3,571,005	*16.13
Revenue from mail, express and other transportation service.....	14,386,477	17,790,747	* 3,404,270	*19.14
Total Railway Operating Revenues.....	\$206,660,436	\$245,418,776	\$*38,758,340	*15.79
Maintenance of Way and Structures.....	\$ 22,442,383	\$ 29,418,140	\$* 6,975,757	*23.71
Maintenance of Equipment.....	41,693,161	51,765,468	*10,072,307	*19.46
Traffic.....	6,269,933	5,948,432	321,501	5.40
Transportation.....	72,500,106	82,958,813	*10,458,707	*12.61
General.....	8,145,895	8,250,057	* 104,162	* 1.26
Miscellaneous.....	2,090,897	2,229,124	* 138,227	* 6.20
Total Railway Operating Expenses.....	\$153,142,375	\$180,570,034	\$*27,427,659	*15.19
Transportation Ratio.....	35.08%	33.80%		
Total Operating Ratio.....	74.10%	73.58%		
Net Revenue from Railway Operations.....	\$ 53,518,061	\$ 64,848,742	\$*11,330,681	*17.47
Taxes.....	\$ 10,326,670	\$ 11,965,798	\$* 1,639,128	*13.70
Equipment, Joint Facility Rents, etc.....	2,942,778	3,698,834	* 756,056	*20.44
Total Charges to Net Revenue.....	\$ 13,269,448	\$ 15,664,632	\$* 2,395,184	*15.29
Net Railway Operating Income, as defined in Transportation Act of 1920....	\$ 40,248,613	\$ 49,184,110	\$* 8,935,497	*18.17
Other Income—Rents, Dividends on Stock and Interest on Bonds Owned..	11,243,924	8,427,835	2,816,089	33.41
Total Income from all sources.....	\$ 51,492,537	\$ 57,611,945	\$* 6,119,408	*10.62
Deductions for Interest and Rentals.....	\$ 29,155,865	\$ 28,024,557	\$ 1,131,308	4.04
All Other Charges against Income.....	912,902	819,480	93,422	11.40
Total Deductions from Income.....	\$ 30,068,767	\$ 28,844,037	\$ 1,224,730	4.25
Balance of Income available for Dividends and other Corporate purposes....	\$ 21,423,770	\$ 28,767,908	\$* 7,344,138	*25.53
Dividends declared:				
Preferred Stock—4%.....	\$ 2,354,528	\$ 2,354,528		
Common Stock—(7% for year 1930; 6% to June 30th and 7% to December 31st, 1929).....	17,940,687	15,367,783	2,572,904	16.74
Total Dividends.....	\$ 20,295,215	\$ 17,722,311	\$ 2,572,904	14.52
Leaving a Surplus, after all charges and dividends declared, of.....	\$ 1,128,555	\$ 11,045,597	\$* 9,917,042	*89.78

Statistics

Revenue Passengers Carried.....	7,143,358	9,038,071	*1,894,713	*20.96
Revenue Passenger Miles.....	625,376,546	728,586,197	*103,209,651	*14.17
Average Miles per Passenger.....	87.55	80.61	6.94	8.61
Average Rate per Passenger Mile (cents).....	2.969	3.039	*.070	*2.30
Tons of Revenue Freight Handled.....	91,907,620	108,602,048	*16,694,428	*15.37
Revenue Ton Miles.....	17,198,081,979	20,657,869,061	*3,459,787,082	*16.75
Average Miles per Ton.....	187.12	190.22	*3.10	*1.63
Average Rate per Ton Mile (mills).....	10.10	9.95	.15	1.51
Revenue Tons per Train Mile.....	892.27	871.92	20.35	2.33
Freight Train Miles per Train Hour.....	11.87	11.47	.40	3.49

* Decrease

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THE BALTIMORE AND OHIO RAILROAD COMPANY

Condensed Balance Sheet—December 31, 1930

ASSETS

Investment in Property used in Transportation Service.....		\$ 918,512,308
Road.....	\$649,281,280	
Equipment.....	269,231,028	
Investment in Separately Operated Companies, including Miscellaneous Physical Property.....		94,646,539
Investment in Sinking Funds and Deposits account Property Sold.....		620,104
Investment in Other Companies.....		111,382,474
Total Investments.....		\$1,125,161,425
Current Assets.....		51,475,883
Cash.....	\$ 18,512,871	
Other.....	32,963,012	
Deferred Assets.....		5,495,827
Total.....		\$1,182,133,135

LIABILITIES

Capital Stock Outstanding.....		\$ 315,158,596
Preferred.....	\$ 58,863,162	
Common.....	256,295,434	
Premium on Capital Stock.....		3,355,721
Long Term Debt.....		607,623,996
Mortgage Debt.....	\$539,619,546	
Equipment Obligations.....	64,296,500	
Capitalized Leaseholds.....	3,707,950	
Current Liabilities—Traffic and Car Service Balances, Accounts and Wages Payable, Interest and Dividends Matured and Unpaid, Unmatured Dividends Declared, and Other Current Liabilities.....		50,154,212
Liability for Provident Funds and Other Deferred Items.....		9,834,074
Accrued Depreciation—Equipment.....		75,317,566
Reserve for Taxes, Insurance, etc.....		10,827,641
Surplus.....		109,861,329
Total.....		\$1,182,133,135

Road Operated and Equipment

Total Miles of Road Operated.....	5,653
Total Miles of All Track Operated.....	11,158
Locomotives.....	2,364
Passenger Train Cars.....	1,746
Freight Train Cars.....	103,170
Tugs, Barges and Other Boats.....	204
Work Equipment.....	3,634

individual seats were put in service during the year, and four additional are under construction. These coaches are an innovation, and have been designed especially for overnight travelers who do not wish to avail themselves of Pullman sleeping car accommodations, and are so constructed that they afford the greatest possible comfort to patrons. A unique feature is a lunch counter compartment at the end of the car, where light lunches and soft drinks are served at moderate prices under the most sanitary conditions. No extra charge above the regular railroad fare is made for the additional convenience afforded by these cars.

The world-wide economic depression, which began in the latter part of 1929, is reflected in the reduced earnings of business in general, and as the prosperity of the railroads is closely co-related to that of industry, the effect on the operating revenues of the railroads has been severe. The decline in volume of traffic available during the year 1930, as compared with 1929, coupled with increased competition with other forms of transportation, such as the motor buses and trucks and inland waterways, has resulted in decreased revenues, as follows:

Freight revenue.....	\$31,783,065
Passenger revenue.....	3,571,005
Mail revenue.....	1,324,635
Express revenue.....	1,245,043
All other revenue.....	834,592

Total Decrease.....\$38,758,340

The decrease in Mail Revenue was not because of any diminution in mail handled, but owing to the inclusion in the revenues of 1929, of \$1,331,824, representing additional compensation due by the Government for the period from May 9, 1925, to July 31, 1928, and paid in July, 1929.

Operating expenses were very substantially reduced, but not beyond the point consistent with efficient and safe operation. As shown in the Income Account, the operating revenues decreased 15.79%, while operating expenses were reduced 15.19%.

Notwithstanding the curtailment in maintenance expenses, the property was adequately maintained to meet requirements, and is in good physical condition. Because of the liberal maintenance program of preceding years, an even greater curtailment might have been realized had it not been

the desire to sustain employment so far as practicable under existing conditions.

The ratio of operating expenses to operating revenues in 1930 was 74.10%, as compared with 73.58% in 1929, which, under the conditions prevailing during 1930, reflects a sound performance. While the revenue ton miles decreased 3,459,787,082, or 16.75%, the tons per train mile were actually increased 20.35 tons, or 2.33%. The average revenue train-load at 892.27 tons established a new record and is reflected in the transportation ratio which was 35.08%.

In its complete plan for the consolidation of railroads into a limited number of systems, issued under date of December 9, 1929, the Interstate Commerce Commission allocated the Chicago and Alton Railroad to the Baltimore and Ohio System. A favorable opportunity offering, your Company acquired all of the \$16,834,000 General Mortgage 20-Year 6% Gold Bonds, due 1932, and more than 96.50% of the \$22,000,000 First Lien 50-Year 3½% Gold Bonds, due 1950, of the Chicago and Alton Railroad at a cost of approximately \$23,000,000. This has placed your Company in a potential position to acquire this property subject to underlying funded indebtedness and claims aggregating about \$50,000,000. This purchase, which is still subject to the approval of the Interstate Commerce Commission, would add something over 1,000 miles to the Baltimore and Ohio System, including lines to Chicago, St. Louis, Peoria and Kansas City, thereby greatly strengthening the System in the West.

During the year the Company concluded the purchase of about 98% of the stock of the Buffalo, Rochester & Pittsburgh Railway Company, and about 99% of the stock of the Buffalo and Susquehanna Railroad Corporation. The Company has also enlarged its investment in the Reading Company, so that at December 31st it held about 40% of the stock of that Company.

These acquisitions are reflected in the Balance Sheet item—"Investment in Other Companies."

The cooperation of the stockholders is earnestly solicited, to the end that your Company may secure as great a volume of traffic as possible especially under prevailing conditions. Your interest and assistance in the past have been very helpful, and a continuance of this effort to even a greater degree is hoped for during the present year.

DANIEL WILLARD, President.

[ADVERTISEMENT]

Operating Statistics of Large Steam Railways—Selected for the Month of December, 1930, Com

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line				
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross. Excluding locomotives and tenders	Net. Revenue and non-revenue	Servicable	Un-servicable	Per cent unservicable	Stored	
New England Region:													
Boston & Albany.....	1930	407	148,536	154,634	11,729	3,741	65.1	201,970	71,054	86	42	33.1	29
	1929	407	201,532	215,901	23,879	4,514	63.9	247,577	91,119	101	21	17.3	27
Boston & Maine.....	1930	2,066	327,771	367,664	34,215	10,193	66.1	557,870	206,140	259	41	13.7	76
	1929	2,059	374,147	433,830	57,291	11,630	65.3	640,617	241,032	249	56	18.3	48
N. Y., New H. & Hart.....	1930	2,094	402,764	465,179	24,289	12,501	61.7	714,432	269,467	264	87	24.8	36
	1929	2,106	470,203	540,324	27,922	14,428	62.3	826,405	323,331	286	52	15.5	31
Great Lakes Region:													
Delaware & Hudson.....	1930	876	279,302	367,150	36,871	8,432	59.3	548,594	253,274	240	32	11.7	109
	1929	875	337,291	451,018	50,961	10,206	61.0	659,402	313,220	236	37	13.4	75
Del., Lack. & Western.....	1930	998	407,345	447,001	49,921	12,335	63.7	733,148	295,674	223	58	20.8	32
	1929	998	483,115	535,025	62,118	15,429	63.9	919,145	383,716	230	55	19.3	24
Erie (inc. Chi. & Erie).....	1930	2,316	720,477	752,841	59,389	29,155	59.7	1,834,797	716,982	383	94	19.6	115
	1929	2,316	864,670	926,218	69,946	34,239	60.4	2,147,307	870,811	424	88	17.3	64
Grand Trunk Western.....	1930	1,019	229,516	232,395	3,553	5,957	60.4	353,245	123,873	76	40	34.5	37
	1929	992	260,124	263,644	4,144	7,124	60.9	415,728	151,042	87	31	26.0	27
Lehigh Valley	1930	1,343	437,789	466,581	46,476	12,527	60.3	796,358	328,906	237	108	31.3	22
	1929	1,343	520,061	569,711	68,230	15,117	62.2	944,738	410,720	264	70	21.1	25
Michigan Central	1930	1,869	404,728	409,127	11,378	12,264	59.2	727,902	253,101	153	63	29.1	44
	1929	1,820	495,628	496,120	20,218	14,982	58.3	900,906	325,357	195	41	17.5	39
New York Central.....	1930	6,468	1,724,235	1,871,193	123,787	59,514	58.6	3,823,942	1,575,684	946	399	29.7	321
	1929	6,467	2,122,923	2,341,678	193,081	70,833	58.6	4,589,143	1,954,864	983	304	23.6	184
New York, Chi. & St. L....	1930	1,660	530,677	539,689	8,008	15,514	57.5	944,471	328,255	185	71	27.7	38
	1929	1,665	645,678	652,385	6,648	18,652	57.4	1,127,387	417,415	209	48	18.7	29
Pere Marquette	1930	2,226	318,164	321,943	2,081	6,902	57.1	451,282	176,625	171	17	9.1	59
	1929	2,178	400,514	403,934	3,135	8,885	58.0	576,447	239,961	173	28	14.0	28
Pitts. & Lake Erie.....	1930	232	88,318	90,076	917	3,096	55.7	259,148	140,954	56	17	23.4	20
	1929	232	125,775	128,698	1,771	4,044	58.9	331,013	183,880	50	14	21.2	12
Wabash	1930	2,497	665,397	691,244	12,628	17,608	59.0	1,077,482	369,742	297	108	26.7	50
	1929	2,497	790,737	836,235	14,696	20,982	59.8	1,266,889	458,597	290	66	18.5	25
Central Eastern Region:													
Baltimore & Ohio.....	1930	5,536	1,417,250	1,639,180	193,194	39,916	57.6	2,791,510	1,226,162	933	252	21.3	279
	1929	5,541	1,756,419	2,009,634	253,496	48,618	58.1	3,418,226	1,563,511	1,053	175	14.3	248
Big Four Lines.....	1930	2,712	669,481	695,328	23,919	19,094	58.9	1,304,246	605,402	296	133	31.0	42
	1929	2,712	863,958	900,252	23,570	23,719	57.4	1,658,677	769,213	319	131	29.1	11
Central of New Jersey....	1930	692	207,316	222,880	31,246	5,757	55.2	407,547	183,403	152	36	19.1	33
	1929	691	261,443	283,312	43,370	7,152	55.0	514,784	241,565	162	39	19.6	10
Chicago & Eastern Ill....	1930	946	194,948	196,192	2,417	4,421	59.2	296,561	128,523	90	60	39.9	32
	1929	946	255,344	256,512	3,125	5,974	60.9	400,350	183,540	95	64	40.3	22
Elgin, Joliet & Eastern....	1930	447	111,779	115,891	4,706	2,641	57.4	218,372	110,581	74	20	21.0	10
	1929	453	133,904	144,285	7,337	3,355	58.6	268,351	136,730	75	18	19.0	3
Long Island	1930	400	41,712	44,647	11,128	482	51.8	36,453	13,748	37	6	14.0	..
	1929	400	45,615	49,578	14,646	493	54.1	33,802	12,129	49	6	10.1	5
Pennsylvania System.....	1930	10,675	3,183,383	3,575,093	357,299	99,863	58.9	6,862,282	2,980,384	2,275	308	11.9	760
	1929	10,738	3,753,886	4,328,911	426,278	120,140	59.7	8,280,902	3,730,093	2,390	373	13.5	498
Reading	1930	1,447	566,761	612,543	53,175	14,390	56.4	1,084,367	524,669	309	70	18.5	34
	1929	1,451	648,530	707,971	53,063	16,492	57.3	1,221,342	603,250	342	56	14.0	32
Pocahontas Region:													
Chesapeake & Ohio.....	1930	3,116	1,024,213	1,082,357	41,394	33,432	53.2	2,861,975	1,515,537	606	110	15.3	188
	1929	3,080	1,239,745	1,316,242	54,488	40,201	54.2	3,386,234	1,825,634	560	108	16.2	70
Norfolk & Western.....	1930	2,226	680,168	735,360	35,484	21,670	57.1	1,838,074	952,758	467	33	6.6	168
	1929	2,230	835,144	953,457	52,548	28,483	56.4	2,488,649	1,337,104	454	45	9.1	86
Southern Region:													
Atlantic Coast Line.....	1930	5,161	690,694	696,520	10,065	14,290	58.2	805,883	267,742	394	74	15.9	87
	1929	5,154	643,395	644,295	10,407	15,320	59.5	861,604	299,109	403	51	11.2	88
Central of Georgia.....	1930	1,900	217,608	218,442	3,450	4,614	65.1	262,176	100,370	115	33	22.3	7
	1929	1,900	240,825	242,889	5,014	5,438	66.5	302,253	119,745	132	19	12.6	6
Ill. Cent. (inc. Y. & M. V.)	1930	6,683	1,581,971	1,598,144	27,977	36,598	57.4	2,556,917	1,035,633	719	168	18.9	54
	1929	6,694	1,937,894	1,949,824	30,334	46,066	56.6	3,289,717	1,371,671	725	117	13.9	9
Louisville & Nashville....	1930	5,271	1,255,026	1,330,725	38,050	24,828	56.8	1,783,707	834,001	557	165	22.9	133
	1929	5,247	1,564,903	1,661,938	50,529	30,748	56.2	2,231,058	1,058,294	546	142	20.6	32
Seaboard Air Line.....	1930	4,466	526,228	535,145	6,689	12,207	58.7	752,084	258,714	275	24	8.0	17
	1929	4,475	549,676	562,582	7,793	13,487	60.3	806,750	291,835	267	48	15.2	11
Southern	1930	6,626	1,230,718	1,245,518	22,664	26,251	61.7	1,533,119	589,417	812	183	18.4	212
	1929	6,679	1,379,702	1,409,302	29,281	30,958	60.0	1,824,762	712,330	838	131	13.5	164
Northwestern Region:													
Chi. & North Western....	1930	8,459	1,069,577	1,110,204	28,157	25,576	62.4	1,531,037	587,895	735	122	14.2	201
	1929	8,459	1,304,914	1,373,173	25,224	31,997	62.1	1,970,937	801,543	792	81	9.3	110
Chi. Gt. Western.....	1930	1,459	240,434	256,807	20,000	7,404	60.3	524,628	168,089	99.5	12.3	11.0	10.0
	1929	1,459	337,252	374,603	21,761	8,017	59.7	576,369	186,697	118.8	22.9	16.2	19.8
Chi., Milw., St. P. & Pac.	1930	11,304	1,343,704	1,418,363	74,795	33,953	59.9	2,165,177	874,312	800	144	15.3	300
	1929	11,244	1,591,262	1,714,264	90,369	41,864	60.7	2,629,276	1,096,262	790	156	16.4	211
Chi., St. P., Minn. & Om.	1930	1,714	256,936	279,075	12,886	5,104	61.6	308,186	126,012	152	27	15.2	52
	1929	1,724	332,903	365,393	17,707	6,381	63.6	388,964	168,529	152	23	13.3	23
Great Northern	1930	8,342	649,434	658,165	24,652	20,041	71.3	1,152,393	531,941	489	125	20.3	132
	1929	8,339	756,836	780,204	48,892	23,122	71.9	1,309,868	622,355	457	156	25.4	67
Minn., St. P. & S. St. M.	1930	4,356	365,325	371,679	3,114	8,097	67.6	441,779	185,803	166	63	27.6	37
	1929	4,388	433,631	446,622	4,801	10,686	65.9	587,631	248,9				

pared with December, 1929, for Roads with Annual Operating Revenues Above \$25,000,000

Region, road and year	Average number of freight cars on line			Per cent un-serv-ice-able	Gross ton-miles per train-hour, ex-cluding loco-motives and tenders	Gross ton-miles per train-mile, ex-cluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Loco-motive-miles per locomotive-day
	Home	Foreign	Total										
New England Region:													
Boston & Albany.....1930	3,967	3,098	7,065	8.0	19,437	1,360	478	19.0	324	26.2	5,630	167	41.9
1929	3,999	3,805	7,804	6.2	18,099	1,228	452	20.2	377	29.2	7,220	186	63.4
Boston & Maine.....1930	11,576	7,978	19,554	8.0	21,820	1,702	629	20.2	394	25.4	3,219	122	43.2
1929	8,812	10,462	19,274	2.5	21,382	1,712	644	20.7	403	29.8	3,776	123	52.1
N. Y., New H. & Hart..1930	19,235	12,440	31,675	14.4	23,569	1,774	669	21.6	274	20.6	4,150	119	45.0
1929	17,533	14,887	32,420	9.7	22,867	1,758	688	22.4	322	23.0	4,953	121	55.1
Great Lakes Region:													
Delaware & Hudson.....1930	10,013	3,868	13,881	3.7	25,268	1,964	907	30.0	589	33.1	9,330	132	48.0
1929	9,292	5,367	14,659	4.2	24,121	1,955	929	30.7	689	36.8	11,548	137	59.3
Del., Lack. & Western...1930	19,550	4,638	24,188	5.1	23,598	1,870	726	24.0	394	25.8	9,556	159	57.0
1929	17,507	7,076	24,583	5.0	24,096	1,903	794	24.9	504	31.7	12,401	157	67.7
Erie (inc. Chi. & Erie)..1930	38,755	12,136	50,891	2.9	36,470	2,547	995	24.6	454	31.0	9,987	116	54.9
1929	34,688	16,930	51,618	3.0	33,136	2,483	1,007	25.4	544	35.4	12,129	124	62.8
Grand Trunk Western...1930	4,604	10,444	15,048	7.8	24,635	1,539	540	20.8	266	21.1	3,921	113	65.9
1929	4,584	11,890	16,474	5.2	22,151	1,598	581	21.2	296	22.9	4,913	119	73.5
Lehigh Valley1930	21,183	6,334	27,517	8.4	26,497	1,819	751	26.3	386	24.3	7,901	161	48.0
1929	19,720	9,074	28,794	6.2	24,560	1,817	790	27.2	460	27.2	9,866	169	61.6
Michigan Central.....1930	26,090	15,339	41,429	5.1	31,966	1,798	625	20.6	197	16.1	4,368	119	62.9
1929	26,317	13,580	39,897	3.2	30,124	1,818	656	21.7	263	20.8	5,768	127	70.6
New York Central.....1930	82,773	58,845	141,618	7.6	32,018	2,218	914	26.5	359	23.1	7,859	114	47.8
1929	76,418	62,967	139,385	4.7	29,196	2,162	921	27.6	452	28.0	9,751	120	63.5
New York, Chi. & St. L..1930	16,530	7,615	24,145	5.7	27,879	1,780	619	21.2	439	36.1	6,378	113	69.0
1929	14,872	9,528	24,400	6.7	25,052	1,746	646	22.4	552	42.9	8,088	120	82.7
Pere Marquette1930	13,088	4,255	17,343	3.3	22,516	1,418	555	25.6	329	22.5	2,559	106	55.5
1929	12,710	7,315	20,025	3.6	20,453	1,439	599	27.0	387	24.7	3,554	118	65.4
Pitts. & Lake Erie.....1930	20,386	4,267	24,653	5.1	36,884	2,934	1,596	45.5	184	7.3	19,598	121	40.5
1929	16,221	6,276	22,497	6.6	31,245	2,632	1,462	45.5	264	9.8	25,560	120	66.1
Wabash1930	21,364	8,762	30,126	5.1	29,905	1,619	556	21.0	396	32.0	4,777	127	56.1
1929	18,355	12,191	30,546	1.8	26,680	1,602	580	21.9	484	37.1	5,925	137	77.2
Central Eastern Region:													
Baltimore & Ohio.....1930	83,659	18,200	101,859	5.8	24,015	1,970	865	30.7	388	21.9	7,145	164	49.9
1929	74,582	26,588	101,170	4.1	22,825	1,946	890	32.2	499	26.7	9,103	165	59.4
Big Four Lines.....1930	24,894	21,190	46,084	4.6	30,634	1,948	904	31.7	424	22.7	7,202	116	54.0
1929	26,434	22,761	49,195	3.7	26,821	1,920	890	32.4	504	27.1	9,150	130	66.2
Central of New Jersey...1930	18,325	7,449	25,774	7.0	24,820	1,966	909	32.7	236	13.0	8,779	150	43.7
1929	17,678	10,227	27,905	4.8	23,796	1,969	924	33.8	279	15.0	11,285	154	52.4
Chicago & Eastern Ill....1930	10,782	2,524	13,306	40.8	25,581	1,521	659	29.1	312	18.1	4,381	139	42.7
1929	12,620	3,875	16,495	42.6	24,760	1,568	719	30.7	359	19.2	6,257	141	52.7
Elgin, Joliet & Eastern..1930	9,655	4,945	14,600	4.3	16,233	1,954	989	41.9	244	10.2	7,979	132	41.4
1929	9,820	6,882	16,702	4.4	13,629	2,004	1,021	40.8	264	11.1	9,732	152	52.6
Long Island1930	734	4,651	5,385	1.2	6,636	874	330	28.6	82	5.6	1,108	336	41.8
1929	772	4,590	5,362	1.3	5,448	741	266	24.6	73	5.5	977	393	37.9
Pennsylvania System....1930	238,900	53,840	292,740	5.1	28,643	2,156	936	29.8	328	18.7	9,006	140	49.1
1929	222,604	68,975	291,579	3.9	26,650	2,206	994	31.0	413	22.3	11,205	142	55.5
Reading1930	35,664	9,787	45,451	3.3	22,133	1,913	926	36.5	372	18.1	11,694	158	56.6
1929	29,660	13,945	43,605	4.6	20,889	1,883	930	36.6	446	21.3	13,411	159	61.7
Pocahontas Region:													
Chesapeake & Ohio.....1930	49,072	7,774	56,846	1.8	37,144	2,794	1,480	45.3	860	35.6	15,687	101	50.6
1929	37,232	11,255	48,487	2.3	35,238	2,731	1,473	45.4	1,215	49.4	19,118	100	66.1
Norfolk & Western.....1930	39,831	5,463	45,294	.9	39,077	2,702	1,401	44.0	679	27.0	13,804	135	49.8
1929	32,019	7,641	39,660	1.0	41,768	2,980	1,601	46.9	1,088	41.1	19,342	134	65.0
Southern Region:													
Atlantic Coast Line.....1930	28,107	7,989	36,096	4.5	19,337	1,167	388	18.7	239	21.9	1,674	121	48.7
1929	25,707	8,300	34,007	3.8	20,184	1,339	465	19.5	284	24.4	1,872	118	46.6
Central of Georgia.....1930	7,724	2,298	10,022	12.7	18,830	1,205	461	21.8	323	22.8	1,704	146	48.4
1929	5,623	3,095	8,718	5.3	18,662	1,255	497	22.0	443	30.3	2,033	146	53.0
Ill. Cent. (inc. Y. & M. V.)1930	51,876	15,131	67,007	7.0	24,164	1,616	655	28.3	499	30.7	4,999	151	59.2
1929	44,689	19,149	63,838	3.6	23,470	1,698	708	29.8	693	41.1	6,610	149	75.9
Louisville & Nashville...1930	51,660	9,210	60,870	11.4	20,364	1,421	665	33.6	442	23.2	5,104	154	61.1
1929	46,536	12,558	59,094	8.9	19,301	1,426	676	34.4	578	29.9	6,506	158	80.3
Seaboard Air Line.....1930	17,361	6,617	23,978	3.9	20,395	1,429	492	21.2	348	28.0	1,869	136	58.5
1929	16,570	7,361	23,931	5.7	19,683	1,468	531	21.6	393	30.2	2,104	136	58.4
Southern1930	55,681	11,568	67,249	12.9	19,134	1,246	479	22.5	283	20.4	2,848	169	41.1
1929	52,355	15,239	67,594	12.3	18,775	1,323	516	23.0	340	24.6	3,441	169	47.9
Northwestern Region:													
Chi. & North Western...1930	54,333	20,797	75,130	8.4	19,869	1,431	550	23.0	252	17.6	2,242	147	42.8
1929	50,051	26,319	76,370	6.3	19,738	1,510	614	25.0	339	21.8	3,057	150	51.6
Chi. Gt. Western.....1930	4,716	3,555	8,271	10.0	28,500	1,872	699	22.7	656	47.9	3,716	142	79.9
1929	5,665	3,682	9,347	6.7	22,754	1,475	554	23.3	644	46.3	4,128	154	90.2
Chi., Milw., St. P. & Pac.1930	63,474	14,209	77,683	1.9	22,905	1,611	651	25.8	363	23.5	2,495	132	51.0
1929	55,548	19,455	75,003	2.7	22,121	1,652	689	26.2	471	29.7	3,145	145	61.6
Chi., St. P., Minn. & Om.1930	2,850	8,998	11,848	6.9	16,837	1,199	490	24.7	343	22.5	2,372	130	52.7
1929	2,630	9,878	12,508	7.2	15,183	1,168	506	26.4	435	25.9	3,154	145	70.5
Great Northern1930	43,727	8,730	52,457	4.5	24,035	1,774	819	26.5	327	17.3	2,057	140	35.9
1929	41,566	10,425	51,991	4.3	22,023	1,731	822	26.9	386	19.9	2,407	162	43.6
Minn., St. P. & S. St. M.1930	20,520	2,892	23,412	3.4	17,304	1,209	509	22.9	256	16.5	1,376	118	52.8
1929	19,922	4,339	24,261	2.8	17,422	1,355	574	23.3	332	21.6	1,830	124	63.6
Northern Pacific.....1930	42,401	5,675	48,076	8.0	23,441	1,676	705	24.6	278	17.0	2,063	164	40.8
1929	39,697	6,772	46,										

NEWS

(Continued from page 515)

combinations of routes would be unduly circuitous, as defined in the report. The joint through rates are to be 10 to 20 per cent under the lowest all-rail rates between the ports between which the shipment is transported by barge line.

Regarding protests filed by the railways to the granting of the certificate the commission, in the report, by Commissioner Eastman, said that the reasons given were "similar to those often stressed by rail carriers in opposing the construction of a competing rail line," but that under the law authorizing the establishment of the barge line and the Denison, amendment "the question of public convenience and necessity is plainly foreclosed." Therefore, he said, the arguments advanced by the roads in opposition to the granting of the certificate "are not within our province to consider so far as this particular application is concerned."

Peoria Transportation Club

S. M. Russell, traffic representative of the Pennsylvania, has been elected president of the Transportation Club of Peoria (Illinois). The secretary of this club is R. A. Wertman, Commercial National Bank Building, Peoria.

Ohio Valley Shippers' Board

The Ohio Valley Shippers' Advisory Board will hold its twenty-eighth regular meeting at the Neil House, Columbus, Ohio, on Tuesday, March 17. In addition to the usual commodity reports and statements from representatives of railroads, there will be an address by S. P. Bush. Following the meeting there will be a luncheon, given by the Columbus Transportation Club in honor of the Shippers' Board.

Coal Consumption Less in 1930

The Class I railroads consumed 97,764,206 net tons of coal in locomotives during 1930, as compared with 112,862,465 tons in 1929, according to reports issued by the United States Bureau of Mines and the National Coal Association. The decrease in consumption was 15,098,258 net tons, or 13.8 per cent. The average cost of coal in 1930 was \$2.34 per net ton, including direct freight charges, and the cost of labor, supplies, etc., incidental to the handling of the coal by the carriers, as compared with \$2.40 per net ton for the year 1929, a reduction of 6 cents or 2.5 per cent. The consumption by regions and the cost per net ton, with and without direct freight, for the two years are given in the table:

	1930 Net Tons Used	Twelve Months Ended December 31 Average Cost per net ton		1929 Net Tons Used	Average Cost per net ton	
		Incl. direct freight charges	Excl. direct freight charges		Incl. direct freight charges	Excl. direct freight charges
Eastern district	47,174,783	2.39	1.83	54,646,023	2.45	1.88
Southern district	21,606,369	1.96	1.65	24,474,069	2.00	1.69
Western district	28,983,054	2.53	2.39	33,742,373	2.61	2.47
United States	97,764,206	2.34	1.95	112,862,465	2.40	2.01

New Industries

A total of 63 new industries were located along the Chicago Great Western during 1930, as compared with 57 in 1929. About 25 types of business are represented, oil and coal companies being in the majority.

The New York, Chicago & St. Louis added 71 new industries during 1930. The approximate capital investment of the organizations is \$2,000,000 and the annual traffic which the railroad expects to derive is 4,000 cars.

Live Stock Agents Organize

The Railway Livestock Agents' Association has been organized with officers as follows: President, E. L. Hoppel, general livestock agent of the Northern Pacific; vice-president, C. N. McNie, general livestock agent of the Chicago & North Western; and secretary-treasurer, E. E. Grimes, livestock agent of the Chicago, Burlington & Quincy. The association will hold a meeting in Denver in July.

I.C.C. Declines to Reconsider Grain Rates

The Interstate Commerce Commission on March 2 denied the petition of the western railroads for a vacation or indefinite postponement of the effective date of its order of July 1, 1930, prescribing a general revision of grain rates throughout the western district and for export, which the roads said would reduce their revenues by over \$20,000,000 a year. The commission did, however, grant a petition filed by the tariff-publishing agents of the roads for a postponement of the effective date of the order from April 1 to June 1, to enable them to complete the preparation of the tariffs.

Rates To Meet Truck Competition For Automobile Shipments Proposed

The southwestern railroads have petitioned the Interstate Commerce Commission for authority to establish special reduced rates on shipments of "automobiles, passenger, loose or in packages, in carloads," for shipments from ten of the principal manufacturing or assembling centers in the West to points within 500 miles in southwestern and Kansas-Missouri territory. This is an effort to meet the increasing competition of motor trucks. Until a short time ago, the petition says, all this traffic was shipped by rail with the exception of a small number of automobiles driven away under their own power, but during the past year the practice of shipping automobiles by truck, generally four on a truck, has developed so ex-

clusively that the railways are faced with the certainty that practically 100 per cent of this traffic will be transported by truck instead of by rail unless the rates are reduced.

The rates proposed range from \$30 for distances under 100 miles up to \$62 for distances between 100 and 200 miles and \$185 for 500 miles, per freight car of 40 ft. 6 in., in length.

It is proposed to apply the rates only where there is active truck competition; and as the proposal is an experiment the rates are to be published to expire at the end of the year. The scale of rates was fixed after consultation with the automobile manufacturers.

C. & N. W. Extends Store-Door Delivery

The Chicago & North Western inaugurated store-door pick-up and delivery service of less than car load commodities from Rockford, Ill., and Beloit, Wis., to Chicago, on March 5. A 38 cents per hundred lb. rate has been placed in effect, entitling the shipper and consignee to complete store-door to store-door service on less than car load shipments of certain designated machines and machinery. All units of the service will be under the supervision of the railroad and the trucking will be performed by contract. Earlier in the year the North Western inaugurated container car service between Chicago and Milwaukee, Wis.

North Western Sets Accident Prevention Record

All records for safety and accident prevention on the Chicago & North Western, on which the safety first movement originated, were surpassed in 1930 when fatalities on that railroad were reduced 22 per cent while casualties in all classifications were reduced 58 per cent as compared with the previous year.

During 1930, as compared with 1929, fatal accidents to employees were reduced 59 per cent, injuries to employees were reduced 76 per cent, injuries to passengers were reduced 27 per cent and a reduction of 26 per cent was obtained in the accidents at highway crossings. The number of injuries to employees in 1930 shows a reduction of 88 per cent under 1928.

Club Meetings

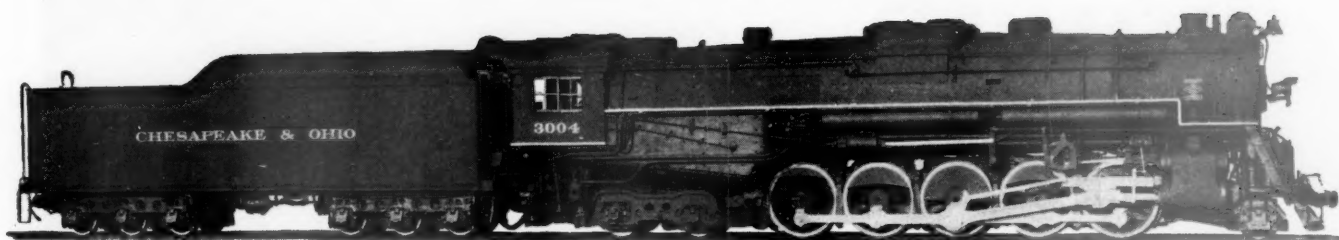
The St. Louis Railway Club will hold its next meeting on Friday evening, March 13, at Hotel Statler, St. Louis. The speaker will be C. C. Taylor, assistant freight traffic manager of the Mobile & Ohio.

The Louisiana Car Department Association will hold its next meeting at Lafayette, La., on Saturday evening, March 14. The discussion will be on the A. R. A. Interchange Rules. The secretary is Leslie Brownlee, 3730 South Prieur street, New Orleans, La.

Pooling of Passenger Service Discussed

The pooling of passenger service as a means of reducing operating costs was discussed by the presidents of western

Continued on Second Left Hand Page



A NEW Tool...for Reducing Operating Expenses

By intensifying power output, locomotive designers have given the railroads a new tool with which to attack operating problems.

The Chesapeake & Ohio Railway utilized this principle of intensified power output in its latest design of 2-10-4 type locomotive.

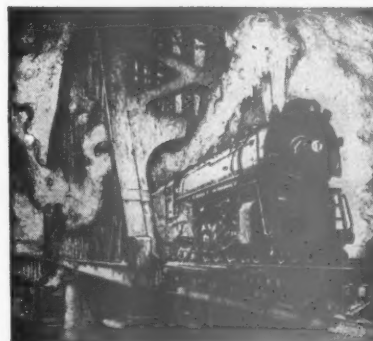
Comparison of this locomotive with a class of power which has given a splendid account of itself, the C. & O. 2-8-8-2 Mallet, presents a clear-cut demonstration of the possibilities for capacity and economy offered by the Super-Power Locomotive.

With a single 10 coupled driving wheel unit and trailer booster, the Super-Power Locomotive weighs about two tons less than the old locomotive and carries about fifty-nine tons less on its drivers.

In starting power the two locomotives are about the same, but at 30 M. P. H. the 2-10-4 has about 8% more draw bar pull.

The practical operating advantages of the 2-10-4 type are decreased fuel consumption and maintenance and increased speed, resulting in increased gross-ton-miles-per-train-hour.

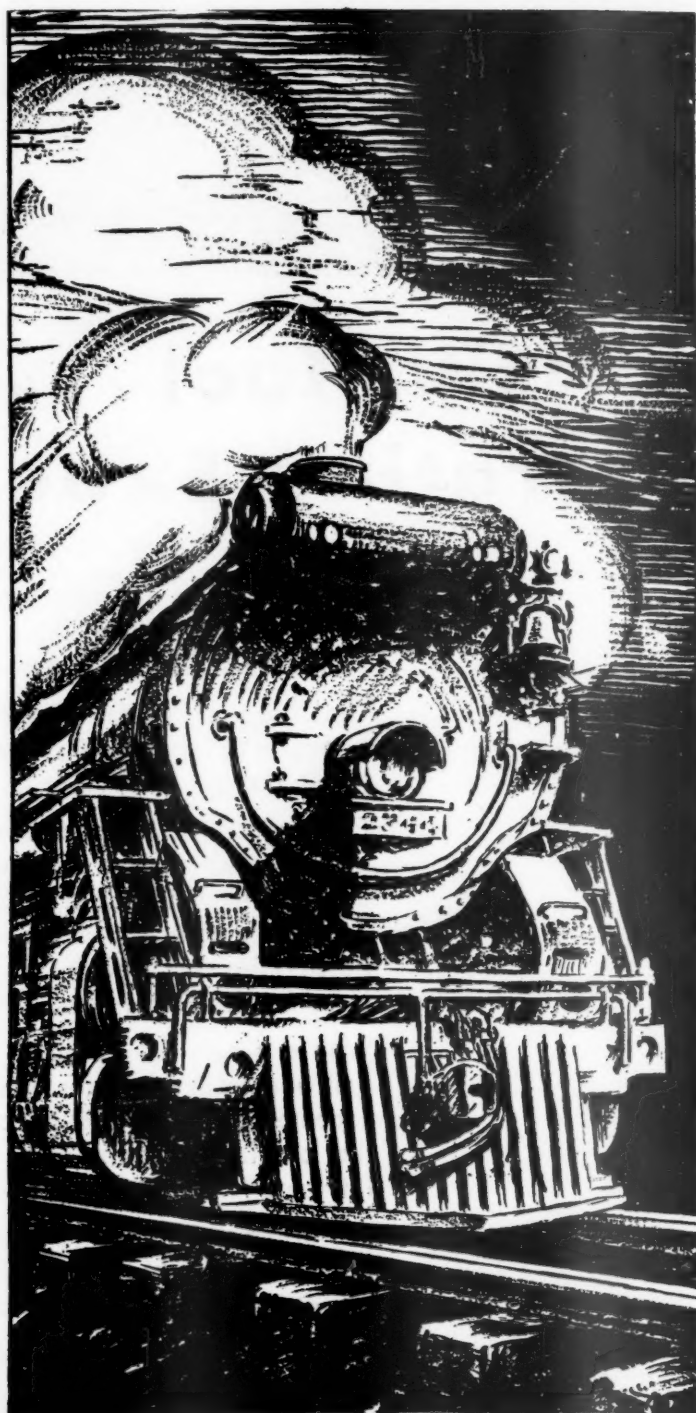
Power and more power is the answer to the problems of modern railroad operation.



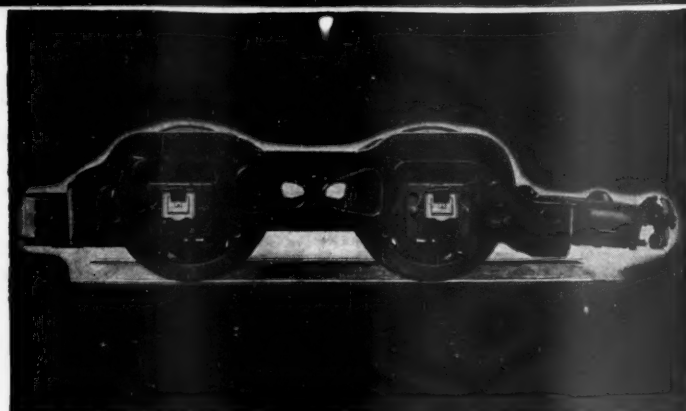
LIMA LOCOMOTIVE WORKS

Incorporated
LIMA OHIO

POWER IS ECONOMY



■ In deciding on the type of new power, remember that The Locomotive Booster supplies the starting power of another pair of drivers. Incorporating it in the new design will save the increased maintenance that would otherwise be involved in the use of another pair of drivers.



THE locomotive of the future will be of even greater power per pound of weight than the locomotive of today.

■ This is the verdict of the country's locomotive experts as presented before the Traveling Engineers at Chicago.

■ Intensive power production calls for the incorporation of The Locomotive Booster in the design of every locomotive—large and small. In no other way can you get the most intensive work out of every pound of metal.

■ Unless a locomotive has a Booster, it must be built heavier in order to

get the required tractive power to start the load it can haul at speed.

■ Once underway, such a locomotive carries excess weight. It is not loaded to capacity. It has a pair of drivers which could be dispensed with as far as hauling ability is concerned.

■ Contrast this with a Booster-equipped engine loaded according to capacity at speed. The Booster is cut in only when needed. It uses idle weight and spare steam for starting, accelerating and to maintain speed on grades.

■ Greater tonnage is hauled, resulting in lower ton-mile fuel costs.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK

CHICAGO

SAN FRANCISCO

ST. LOUIS

MONTREAL

railroads at an informal meeting held at Chicago on February 26 and attended by Commissioner B. H. Meyer and Director of Service W. P. Bartel of the Interstate Commerce Commission. Those in attendance decided to make a study of the pooling of train service and as a result seven committees will be appointed to investigate and offer suggestions for pooling in the west. Each of the seven committees will include a representative from each railroad in the territory assigned to the committee. At the same time, individual carriers will study the possibilities of pooling to determine its practicability. The findings of the committees and of the different roads will be discussed at another meeting of presidents to be held within a few weeks.

Southern Livestock Rates

The general basis of interstate freight rates on livestock in southern territory and the rules and regulations governing them are found by the Interstate Commerce Commission to be not unreasonable or otherwise unlawful. The report states that the rates generally are based upon distance scales heretofore approved by the commission for uniform application over "standard" lines between points in that territory, excluding points in Florida, as to which no finding was made. Certain exceptions, however, are approved for local applications. Interstate rates on edible livestock from certain points on the Chesapeake & Ohio in Kentucky to Cincinnati, Ohio, were found unreasonable to the extent that they exceed a mileage scale approved. Certain so-called short or weak lines were accorded arbitraries over the rates approved for standard lines. Undue prejudice was found to exist against persons and localities in interstate commerce by reason of the intrastate rates in Alabama and Georgia, which the commission requires shall be revised in accordance with its findings; and rates on horses and mules intrastate in South Carolina were found to be prejudicial against interstate commerce.

Safety Warning For School Children

The Committee on Education, of the American Railway Association, L. G. Bentley, chairman, supplementing its regular monthly circular to railroad safety departments, has prepared a special issue for use in preaching the safety gospel to the boys and girls of the public schools; and it is suggested that this feature of railroad safety work should be given special attention in the latter part of April, the month of May and the first half of June. There has been, says Mr. Bentley, an insistent demand for material of this kind, and the committee has prepared two documents, an illustrated circular, of pocket size, summarizing briefly the lessons of past years, and a large colored poster depicting the remorse of a boy who has lost a leg by jumping on freight trains.

The number of youths killed and injured on railroads in each year, 1923-1929, is shown in pictures. The total has been reduced somewhat, but even

in the latter year the number of killed and injured aggregated 993. The desideratum is, of course, the complete abolition of this item in the records, and attention is called to the fact that in the seven years which ended with 1929, boys and girls under 14 years of age to the number of 1,349 were killed while trespassing on railroad tracks and trains in the United States, and 1,792 were injured. Between the ages of 14 and 21, there were 1,823 persons killed and 3,628 seriously injured.

The committee recommends putting these printed admonitions in each schoolroom, particularly in the rural districts; in each school bus and in other suitable places.

Olympian Collides with Victory at Camp Douglas, Wis.

"The Olympian" of the Chicago, Milwaukee, St. Paul & Pacific, eastbound from the Pacific coast to Chicago, collided with "The Victory" of the Chicago & North Western, northbound from Chicago to Minneapolis, Minn., while it was standing at the joint passenger station of the two roads at Camp Douglas, Wis., early on the morning of February 28. The two railroads cross at approximately a right angle and the locomotive of the Olympian struck the Victory between the tender and the first baggage car, killing the fireman of the Olympian and shaking up eight of that train's passengers. Four of the 13 cars

of the Olympian and three cars of the Victory were derailed, as well as the locomotives of both trains.

There is an interlocking plant with derrails at the Camp Douglas crossing; and the Milwaukee has automatic block signals and an automatic train control system. The investigation conducted by the Milwaukee road showed that the signals were clear for the North Western and that the engineman of the Olympian had "acknowledged" the restrictive cab signal indication of the automatic train control system at the distant signal, which is 5,659 ft. west of the crossing. This action of the engineman forestalled the automatic application of the brakes. At some point between the distant signal and the home signal, a distance of 4,936 ft. the engineman made an emergency application of the brakes, but not soon enough to stop the train short of the crossing. The derail, 546 ft. west of the crossing, failed to throw the wheels off the track and the train continued to the crossing on the rails.

Officers of the Milwaukee expressed the belief that if the derail had been effective the injuries to passengers and damage to cars and engines of both trains would have been much greater.

Icing Rates Reaffirmed

The Interstate Commerce Commission's order prescribing refrigeration charges on fruits, vegetables, etc., from points in the South to eastern and New England states was reaffirmed in a report made public on February 28. The supplemental report, by Commissioner Eastman, says that while the respondents had promised to place before the commission concrete facts to take the place of the "assumptions indulged by the commission," the evidence which they introduced "involved more assumptions than we found necessary in the prior report."

Wool Rates Revised

A general revision of freight rates on wool, in carloads, from practically all western producing points except the Southwest and from St. Louis, Milwaukee and Chicago to points east thereof was prescribed by the Interstate Commerce Commission in a report and order made public on February 26 on a series of complaints filed by the Boston Wool Trade Association and other associations of dealers in wool. The findings will result, the report says, in both increases and reductions, "although the latter will predominate." Rates on wool and mohair, in the grease, from points in Missouri, Iowa, Minnesota, Wisconsin, and the northern peninsula of Michigan to points in the eastern states are declared unreasonable for the future to the extent that they exceed the fourth-class rates prescribed by the commission in the Western Trunk Line class rate case, subject to a minimum weight of 24,000 lbs., per car. The rates prescribed in the class rate case are not yet in effect but the commission recently announced that the railroads expected to be able to make them effective on June

The Parasite Buses

It would be just as logical for individuals to operate motor cars on the railroads as for the public to continue to operate autos on a highway that the bus and truck traffic more and more seeks to monopolize. Perhaps, as bus and truck builders and operators tell us, the railroad is out of date. Perhaps it is to go the road of the stage coach. Perhaps our railroad lines are to become streaks of rust. But if it is to come to that it means there will be so much bus, and truck traffic that the highways will practically be turned over to these parasitic operators.

The time has come when the government should compel the bus business to do exactly what the railroads have had to do—buy their own right of way, build their own road beds and maintain them.

Until this is done a license fee should be put upon every common carrier bus and truck that will equalize road maintenance with the cost maintained by the railroads. That is asking no more than we demand of the railroads. And we have no right to ask the railroads to pay the taxes they now pay when we permit a less taxed competitor to enter the field on an unfair basis.—From an editorial in the Tulsa (Okla.) Tribune.

THERE'S MORE TO SECURITY
ARCHES THAN JUST BRICK



A HALF A DOZEN BRICK . . . saved a ton of coal per trip

- After a shopping, a certain class of engines steamed poorly.
- American Arch Company service engineers added a half a dozen brick to the locomotive Arch and cut down fuel consumption by a ton per locomotive per trip.
- The moral is that a few Arch brick may not look impressive but they have a mighty impressive effect on the fuel bill.
- So, whenever a change is made in firebox conditions, have a check-up by American Arch Company engineers to see that you are getting everything you are entitled to from the Arch.
- Bettering locomotive Arch performance has been the business of this organization for the past 21 years. Only American Arch Company has this experience behind it.

**Harbison-Walker
Refractories Co.**
Refractory Specialists



American Arch Co.
INCORPORATED
*Locomotive Combustion
... Specialists ...*

15. Rates from points of origin west of the eastern boundaries of North and South Dakota, Nebraska, Colorado, and New Mexico to central territory are to be based on the fourth-class rates extended at the rate of 4 cents per 100 lbs. for each additional 50 miles beyond western trunk line territory. Rates on wool in bales, compressed, from points west of the eastern boundaries of the states mentioned to Kansas City, St. Louis, Milwaukee and Chicago are to be based on 85 per cent of the fourth class rates. Rates on western wool in the grease, in sacks, from Kansas City to destinations in official territory east of the Indiana-Illinois state line, except Delaware, Maryland and Virginia, are to be based on the fourth-class rates and rates from St. Louis, Chicago and Milwaukee to the East are to be based on 55 per cent of the first-class rates prescribed in the Eastern class rate investigation, which are expected to become effective at the same time as the western class rates.

Commissioner C. D. Mahaffie dissented, saying he could not concur in the finding that the rates prescribed are reasonable maxima, and objecting to the award of reparation on past shipments on the ground that many of the rates now declared unreasonable were prescribed by the commission in previous cases. "In my opinion," he said, "carriers should not be mulcted in damages where we have prescribed the rates, or under an expression which concedes a lack of evidence upon which to make a finding." He also said that the record is persuasive that these commodities "are not made to carry their proper share of the transportation burden."

At the same time the commission made public another report and order on rates on wool and mohair from western points to Boston and North Atlantic ports south thereof awarding reparation on past shipments from various points of origin to the extent that they exceed a scale of rates prescribed by the commission in the Wool Rate Investigation, 1923, case.

British Railway Dividends

Final dividends for 1930, recently announced by three of the four major British railway companies, have borne out the expectation that disbursements to stockholders, in view of the prevailing general business depression, would be substantially less than in 1929, despite the program of rigid economy in operating expenses followed throughout the year just completed.

The largest and most encouraging of the three dividends was that paid by the Great Western, a final disbursement of 3¼ per cent bringing the total for the year to 5½ per cent, rather more than had been anticipated, and only 2 per cent below the 1929 rate. The Southern is paying 1¼ per cent for the year on its deferred ordinary (common) stock, approximately the expected amount, but only half the 1929 rate. Last year's dividend of 2½ per cent, however, was the largest since 1926, when the con-

version of the ordinary A and B stocks into deferred ordinary increased the total amount of the latter from £27,606,367 to £31,490,242. The reduction in dividend, by which the amount distributed is £393,628 (\$1,913,032) less than a year ago, eliminates the need of drawing on reserves, but reduces the amount to be transferred to surplus.

In contrast to these relatively encouraging reports, the London, Midland & Scottish announced a final dividend of 1 per cent, or a total for the year of only 2 per cent, as against 4½ per cent for 1929. To make this reduced payment, £279,000 was withdrawn from surplus and £488,000 no longer required for income tax reserve was released, while a profit of £392,000 from the sale of securities was also brought in. Nothing has been carried forward to surplus, whereas the amount carried forward in 1929 was £211,655. Furthermore, since this company's dividend off its deferred, or common, stock has fallen below 3 per cent for the first time since the organization of the L.M.S. group in the consolidation period shortly after the war, all its prior charge issues lose their full trustee status and become "chancery" trustee stocks, maintaining that position by virtue of a court order, in the same way as London & North Eastern preferred and debenture shares.

All three dividends are the lowest since the strike year of 1926. "Although indicative of substantial reductions in expenses," Modern Transport (London) says editorially, "they will do nothing to weaken the companies' case for wage and working time adjustments before the National Wages Board. With current trade depression unrelieved, and substantial traffic decreases still taking place, the 1930 dividend announcements point to the necessity for a further pruning of expenditure in every direction."

The Canadian Roads in January

Net earnings of the Canadian Pacific made an encouraging start for the new year with an increase in January of \$75,178, according to the monthly statement. Although gross earnings were considerably lower than in January, 1930, this decrease was more than offset by a reduction in operating expenses.

Gross earnings at \$11,418,882 were down \$1,599,615 as compared with the same period of last year, but operating expenses at \$10,554,873 show a decrease of \$1,674,794. Net earnings at \$864,008 compare with \$788,830 in January, 1930.

The following table shows gross earnings, expenses and net earnings for the month of January:

	JANUARY 1931	1930	Decr.
Gross	\$11,418,882	\$13,018,498	\$1,599,615
Op. Exp....	10,554,873	12,229,667	1,674,794
Op. Net....	\$864,008	\$788,830	x \$75,178

x—Increase

Gross revenues of the Canadian National, excluding eastern lines, during January, 1931, were \$13,756,875, a decrease of \$3,664,297 as compared with January, 1930.

Operating expenses in January, 1931, were \$14,268,803, a decrease of \$2,333,

759 as compared with the corresponding month of 1930.

There was a net revenue deficit of \$511,928 for the month.

Comparative figures are given in the following table:

	JANUARY 1931	1930	Decr.
Gross	\$13,756,875	\$17,421,172	\$3,664,297
Op. Exp....	14,268,803	16,602,562	2,333,759
Op. Net....	*\$511,928	\$818,610	\$1,330,538

* Deficit.

Meetings & Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings.

- AIR BRAKE ASSOCIATION.**—T. L. Burton, Room 5605, Grand Central Terminal Building, New York City. Next meeting, May 19-22, 1931, Royal York Hotel, Toronto, Ont. Exhibit by Air Brake Appliance Association.
- AIR BRAKE APPLIANCE ASSOCIATION.**—Fred W. Venton, Crane Company, 836 So. Michigan Blvd., Chicago. Meets with Air Brake Association.
- AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.**—W. R. Curtis, F. T. R., M & O. R. R., Chicago, Ill.
- AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.**—E. L. Duncan, 332 S. Michigan Ave., Chicago. Next convention, June 16-18, 1931, West Baden Springs Hotel, West Baden, Ind.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.**—W. C. Hope, C. R. R. of N. J. 143 Liberty St., New York.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.**—A. G. Peck, Acting Secretary, 811 W. 35th Street, Kansas City, Mo. Next meeting June 9-13, 1931, Jefferson Hotel, St. Louis, Mo.
- AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.**—F. R. Borger, C. I. & L. R. R., 836 Federal St., Chicago. Next convention, October 20-22, 1931, Baltimore, Md.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.**—Guy C. Hecker, 292 Madison Ave., New York. Next convention, September 26-October 2, 1931, Atlantic City, N. J.
- AMERICAN RAILWAY ASSOCIATION.**—H. J. Forster, 30 Vesey St., New York, N. Y.
- Division I.—Operating.**—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Freight Station Section.**—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago.
- Medical and Surgical Section.**—J. C. Caviston, 30 Vesey St., New York. Next convention June 8-9, 1931, Pennsylvania Hotel, New York, N. Y.
- Protective Section.**—J. C. Caviston, 30 Vesey St., New York. Next convention June 23-25, 1931, Stevens Hotel, Chicago, Ill.
- Safety Section.**—J. C. Caviston, 30 Vesey St., New York.
- Telegraph and Telephone Section.**—W. A. Fairbanks, 30 Vesey St., New York.
- Division II.—Transportation.**—G. W. Covert, 59 East Van Buren St., Chicago.
- Division III.—Traffic.**—J. Gottschalk, 143 Liberty St., New York.
- Division IV.—Engineering.**—E. H. Fritch, 59 East Van Buren St., Chicago. Next meeting, March 10-11, 1931, Palmer House, Chicago. Exhibit by National Railway Appliances Association.
- Construction and Maintenance Section.**—E. H. Fritch. Next meeting, March 10-11, 1931, Palmer House, Chicago.
- Electrical Section.**—E. H. Fritch.
- Signal Section.**—R. H. C. Balliet, 30 Vesey St., New York. Annual meeting May 12-13, 1931, New York City.
- Division V.—Mechanical.**—V. R. Hawthorne, 59 East Van Buren St., Chicago. Next meeting, June 23-25, 1931, Congress Hotel, Chicago.
- Equipment Painting Section.**—V. R. Hawthorne, 59 East Van Buren St., Chicago.
- Division VI.—Purchases and Stores.**—W. J. Farrell, 30 Vesey St., New York, N. Y.
- Division VII.—Freight Claims.**—Lewis Pilcher, 59 East Van Buren St., Chicago.
- Division VIII.—Motor Transport.**—George M. Campbell, 30 Vesey St., New York, N. Y.
- Car Service Division.**—C. A. Buch, 17th and H. Sts., N. W., Washington, D. C.
- AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.**—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Next convention, October 20-22, 1931, Royal York Hotel, Toronto, Ont. Exhibit by Bridge and Building Supply Men's Association.
- AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.**—A. W. Large, Gen. Agri. Agt., C. R. I. & P. Ry., Chicago, Ill. Annual meeting, June 17-19, 1931, Hotel Benjamin Franklin, Philadelphia, Pa.

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RAILWAY MANUFACTURING

"A business slump is never so bad but that it leads to some good. A natural result of this year's situation has been that it has given the railroads an incentive to scrutinize all sources of expense.

The manufacturing and allied activities carried on in railway shops constitute one such class of operations. Suppose they were examined in the light of the conditions which prevail this year? Would the result be to increase or to reduce them?

With business conditions and railway expenses what they are, not a few railways can congratulate themselves that they are not now burdened with fixed properties and organizations for manufacturing supplies, while other railways wish that they were free from such impedimenta. It is an unpleasant thing to lay off labor when business is bad, but it can be done if it must be done. It is also possible to cease buying, and even discontinue manufacturing operations, when there is no money to pay the labor and no immediate need for the output, but when the land has been bought, facilities built and machines installed for manufacturing, they cannot be struck from the pay-roll, but go on exacting interest on the original expenditure and building up maintenance charges whether used or not.

On the corporation books a railway manufacturing plant may be an asset, but in times like the present it can become a liability, particularly when a highly specialized and competitive manufacturing industry is crying for work to do."

*From an editorial in
Railway Age, September 20, 1930*

American Locomotive Company
30 Church Street New York N.Y.

Alco

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AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in co-operation with the American Railway Association, Division IV.—E. H. Fritch, 59 East Van Buren St., Chicago. Next meeting, March 10-11, 1931, Palmer House, Chicago. Exhibit by National Railway Appliances Association.

AMERICAN RAILWAY MAGAZINE EDITORS ASSOCIATION.—Miss E. Phillips, N. Y., N. H. & H. Magazine, Boston, Mass. Next meeting, June 4, 1931, Philadelphia, Pa.; June 5, 1931, Atlantic City, N. J.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C. M., St. P. & P. R. R., 11402 Calumet Ave., Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.—E. L. Caswell, Union Twist Drill Co., 11 S. Clinton St., Chicago.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—R. E. Schindler, Secretary, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Paul D. Mallay, John-Manville Corp., 292 Madison Ave., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 1104 Chandler Building, Washington, D. C.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Annual convention, June 17-19, 1931, Royal York Hotel, Toronto, Ont.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Station, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, Transportation Building, Washington, D. C.

ASSOCIATION OF RAILWAY SUPPLY MEN.—J. F. Gettrust, Ashton Valve Company, 565 Washington Blvd., Chicago. Meets with International Railway General Foremen's Association.

BOILERMAKERS' SUPPLY MEN'S ASSOCIATION.—Frank C. Hasse, Oxweld R. R. Service Company, 230 N. Michigan Ave., Chicago. Meets with Master Boiler Makers' Association.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—S. A. Baber, High Grade Manufacturing Co., 10418 St. Clair Ave., Cleveland, Ohio. Meets with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 2276 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, 2nd Monday in each month, except June, July and August, Windsor Hotel, Montreal, Que.

CAR DEPARTMENT OFFICERS' ASSOCIATION.—A. S. Sternberg, M. C. B. Belt Ry. of Chicago, 7926 South Morgan Street, Chicago. Exhibit by Supply Men's Association.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, Chicago & Alton, 3001 W. 39th Place, Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.—J. W. Krause, Room 299, 610 So. Main St., Los Angeles, Cal. Regular meetings, second Monday of each month, except July, August and September, Room 299, 610 So. Main St., Los Angeles.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—F. G. Wiegman, 720 N. 23rd St., East St. Louis, Ill. Meetings first Tuesday of each month, except July and August, American Hotel Annex, 6th and Market Sts., St. Louis, Mo.

CENTRAL RAILWAY CLUB OF BUFFALO.—T. J. O'Donnell, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, 2nd Thursday each month, except June, July, August, Hotel Statler, Buffalo, N. Y.

CINCINNATI RAILWAY CLUB.—D. R. Boyd, 453 E. 6th St., Cincinnati, Ohio. Meetings 2nd Tuesday in February, May, September and November.

CLEVELAND RAILWAY CLUB.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings, second Monday each month, except July, August, September, Auditorium, Brotherhood of Railroad Trainmen's Building, West 9th St., and Superior Ave., Cleveland.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Exhibit of International Railroad Master Blacksmiths' Supply Men's Association.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.—W. A. Rockenfield, National Machinery Company, Tiffin, Ohio. Meets with International Railroad Master Blacksmiths' Association.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—C. T. Winkless, Room 700 La Salle Street Station, Chicago. Exhibit by International Railway Supply Men's Association.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabasha St., Winona, Minn.

INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—C. M. Huffman, Dearborn Chemical Co., 310 So. Michigan Ave., Chicago. Meets with International Railway Fuel Association.

MASTER BOILER MAKERS ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y. Exhibit by Boiler Makers' Supply Men's Association.

MASTER CAR BUILDERS' AND SUPERVISORS' ASSOCIATION.—(See Car Department Officers' Association.)

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 270 Madison Ave., New York. Annual convention, 1931, Richmond, Va.

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—Roy. M. Edmonds, 1252 Syndicate Trust Bldg., St. Louis, Mo. Annual convention, May 5-7, 1931, West Baden Springs Hotel, West Baden, Ind.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, 1014 South Michigan Ave., Chicago. Exhibit at A. R. E. A. convention.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section: J. L. Walsh, Supt. Safety, M. K. T. R. R., Dallas, Tex. Annual congress, October 12-16, 1931, Hotel Stevens, Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2nd Tuesday in month, excepting June, July, August and September, Copley Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—D. I. McKay, 26 Cortlandt St., New York. Regular meetings, 3rd Friday in month, except June, July and August, 29 W. 39th St., New York City.

PACIFIC RAILWAY CLUB.—W. S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings 2nd Thursday in month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1124 Woodward Building, Washington, D. C. Next convention, June, 1931, Chicago.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 1112 Shoreham Building, Washington, D. C.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 1841 Oliver Building, Pittsburgh, Pa. Regular meeting, 4th Thursday in each month except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—F. W. Venton, Crane Co., 836 S. Michigan Ave., Chicago. Meets with Traveling Engineers' Association.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division, Purchases and Stores Division and Motor Transport Division, American Railway Association.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A. Division 1.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Next convention, September 22-24, 1931, Hotel Stevens, Chicago. Exhibit by Track Supply Association.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Drawer 24, M. P. O., St. Louis, Mo. Regular meetings, 2nd Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmonds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A. Signal Section.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & C. Ry., Atlanta, Ga.

SUPPLY MEN'S ASSOCIATION.—E. H. Hancock, Treasurer, Louisville Varnish Co., Louisville, Ky. Meets with A. R. A. Div. V. Equipment Painting Section.

SUPPLY MEN'S ASSOCIATION.—Bradley S. Johnson, W. H. Miner, Inc., 667 The Rookery Building, Chicago. Meets with Car Department Officers' Association.

TRACK SUPPLY ASSOCIATION.—L. C. Ryan, Oxweld Railroad Service Co., Carbon & Carbide Building, Chicago. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland, O. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—W. J. Dickinson, 343 So. Dearborn St., Chicago. Regular meetings 3rd Monday each month, except June, July and August.

Equipment and Supplies

LOCOMOTIVES

THE ATCHISON, TOPEKA & SANTA FE has ordered 10 locomotive tenders from the Baldwin Locomotive Works.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has ordered eight 4-6-4 type locomotives from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of December 6.

FREIGHT CARS

THE SINCLAIR REFINING COMPANY is inquiring for six hopper ore cars of 50 or 70 tons capacity.

THE BESSEMER & LAKE ERIE has placed orders for 1050 hoppers cars of 90 tons' capacity with builders as follows: American Car & Foundry Company, 350; Pressed Steel Car Company, 300; Standard Steel Car Corporation, 300; Greenville Steel Car Company, 100. Inquiry for this equipment was reported in the *Railway Age* of December 20.

THE NORTHERN PACIFIC is inquiring for 500 stock car underframes.

THE UNION PACIFIC has ordered one plow car from the Rodger Ballast Car Company. This car will be built by the American Car & Foundry Company.

PASSENGER CARS

THE GUANTANAMO & WESTERN (Cuba) has ordered one set of equipment for a gasoline rail motor car from the J. G. Brill Company.

THE CONSOLIDATED RAILROADS OF CUBA have ordered five combination passenger and baggage gasoline rail motor cars from the J. G. Brill Company.

THE RIO GRANDE DO SUL has ordered five sleeping cars, four dining cars, six first-class coaches and six mail and baggage cars, from the Pullman Car & Manufacturing Corporation. Dr. Octacilio Pereira, Porte Alegre, Rio Grande do Sul, Brazil, is general manager.

THE INTERBOROUGH RAPID TRANSIT COMPANY has ordered 331 truck frames from the American Car & Foundry Company.

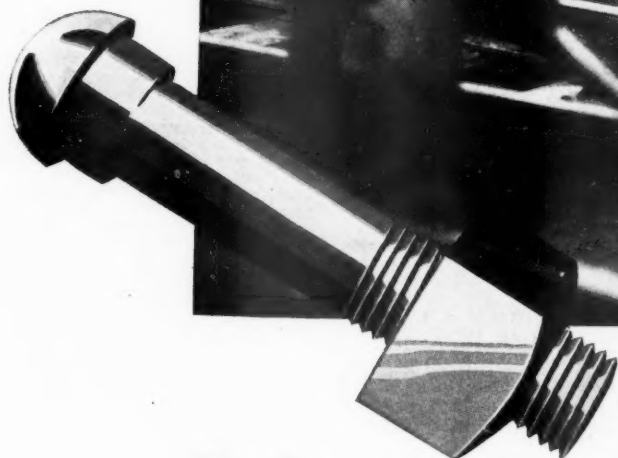
IRON & STEEL

THE BOSTON & MAINE has ordered 150 tons of steel for bridge work, from the Boston Bridge Works.

THE NORFOLK & WESTERN has ordered 125 tons of steel for a bridge at Grundy, Va., from the Roanoke Bridge Works.

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ILLINOIS SPIKES



& BOLTS

**help you keep maintenance
costs down.**



Illinois Steel Company
SUBSIDIARY OF UNITED STATES STEEL CORPORATION
208 South La Salle Street, Chicago, Illinois

THE CENTRAL OF NEW JERSEY has ordered 1600 tons of steel for a bridge at Hometown, Pa., from the Phoenix Bridge Company.

THE CANADIAN PACIFIC has ordered 1500 tons of steel for bridges on its Moosehead division in Maine, from the Bethlehem Steel Company.

SIGNALING

THE UNION PACIFIC has ordered from The General Railway Signal Company material for an electric interlocking at Cheyenne, Wyoming; 23 working levers. Color-light signals, type SA, will be used.

THE NEW YORK CENTRAL has ordered from the General Railway Signal Company an electric interlocking, with 48-lever machine for Sedgwick Avenue, New York City.

THE TENNESSEE COAL, IRON & RAILROAD COMPANY has ordered from the Union Switch & Signal Company material for remote switch operation, with low voltage machines, at Edgewater Junction, Ala., and Exum, Ala., the control in both cases being exercised by means of a centralized control machine.

THE GREAT WESTERN RAILWAY OF ENGLAND has contracted with the General Railway Signal Company, Ltd., of London, for an all-electric interlocking at Westbourne Bridge, Paddington station, London. The machine will have 88 levers. The signals, both high and dwarf, are of the SA color-light type, and Model 5A switch machines will be used.

Extensive Signal Work in New York City

The New York Rapid Transit Corporation has contracted with the General Railway Signal Company to furnish and install automatic block signaling and electric interlocking on its Nassau street line; Chambers street to Montague street tunnel; and on the Fourteenth street line, Manhattan, which is being extended from Sixth avenue westward to Seventh avenue. This order includes 59 color-light signals and two interlocking machines, one of 16 levers and one of 32 levers.

The Corporation has also contracted with the G. R. S. for automatic block signaling and changes in signaling on the Brighton Beach line; eight miles of track, 73 color-light signals, automatic train stops, etc.

The Board of Transportation of the City of New York has contracted with the General Railway Signal Company to furnish and install automatic block signals and electric interlocking on two sections of new subways; Line D from Eighth avenue to Roosevelt avenue, and line E from Nassau avenue to Queens Plaza. This work covers 20 miles of track and the order includes 339 color-light signals, 48 switch machines and seven interlocking machines; these machines to have a total of 174 working levers.

Supply Trade

Carl W. Woessner who was southeastern representative of W. H. Miner Inc., Chicago, is no longer connected with that organization.

W. J. Roehl has been appointed representative in the St. Louis territory of the Ewald Iron Company, Louisville, Ky. Mr. Roehl's headquarters are in the Paul Brown building, St. Louis, Mo.

Charles S. Bilyeu has been appointed manager of the structural steel department of the Robert W. Hunt Company, Chicago, to succeed W. T. Reeves who has been appointed consulting engineer of the structural department.

The Watson-Stillman Company, Roselle, N. J. has purchased the assets and business of the Burroughs Company, Newark, N. J., who has for many years specialized in the design and building of plastic molding hydraulic machinery. The Watson-Stillman Company will continue this line adding it to its own extensive line of similar equipment.

At the annual meeting of the stockholders of the Southern Wheel Company held in Atlanta, Ga., on February 17, the directors elected included: Robert T. Jones, Jr., L. W. Robert, Jr., both of Atlanta; Byron C. Foy, vice-president of the Chrysler Corporation; Langbourne Williams, vice-president of the Freeport Texas Company; S. F. Pryor, Frederick W. Allen and William F. Cutler, president of the Southern Wheel Company.

Worthington Pump & Machinery Corporation Annual Report

Net income of \$2,056,093, after deductions for depreciation, slow-moving and obsolete inventory items and provision for Federal income taxes, was reported by the Worthington Pump & Machinery Corporation for the year ending December 31, 1930. This compares with a 1929 net income of \$2,529,356.

During the past year charges for depreciation totaled \$611,758 while the deduction for slow moving and obsolete inventory items amounted to \$171,929. "Control of inventories," the report states "has been maintained on a conservative basis and a more rapid turnover has thus been realized.... The reduction in inventories during the year amounted to \$642,811 after full provision for slow moving and obsolete materials."

Dividends disbursements of \$782,997 on the Class A preferred stock and of \$1,238,601 on the Class B preferred were made during the year. The surplus, after adjustment for these dividends, amounted to \$5,693,665 as against a surplus of \$5,659,169 on December 31, 1929.

Current assets at the close of the year were \$16,246,050 and current liabilities \$1,358,117. Of the \$14,887,933 excess of current assets, \$6,635,706 was in cash, certificates of deposit and securities. Unfilled orders on December 31 amounted

to \$4,529,060, representing an increase over the comparable figure for the previous year.

American Steel Foundries

The annual report of the American Steel Foundries for 1930 shows net income for the year of \$2,801,442, as compared with \$5,121,487 in 1929. The surplus account, which totaled \$14,207,233 as of December 31, 1930, was increased after adding the net income, to a total of \$17,008,676, from which were deducted preferred stock dividends amounting to \$443,450, common stock dividends amounting to \$2,979,060, and loss from the sale of property amounting to \$158,787, leaving a surplus amounting to \$13,427,378. Assets totaled \$57,116,970, of which current assets amounted to \$16,302,771, and real estate, buildings, plants and goodwill \$40,097,847. The condensed income statement with comparisons with 1929 follows:

	1930	1929
Earnings from operations, after deducting manufacturing, selling and administrative expenses and federal taxes	\$3,921,874	\$6,494,568
Deduct Depreciation	1,187,975	1,412,406
Net profit from operations	\$2,733,899	\$5,082,162
Add—Miscellaneous Income: Interest, discount and exchange, etc.	95,684	259,999
Income from investments	303,833	349,330
Total profit and income.	\$3,133,416	\$5,691,491
Deduct Interest charges on borrowed money		23,416
Reserve for federal income tax	313,870	518,574
Net earnings of subsidiary company appertaining to outstanding minority stockholdings	18,104	28,014
Net Income carried to surplus	\$2,801,442	\$5,121,487

George E. Scott, president, in his statement to stockholders, said in part:

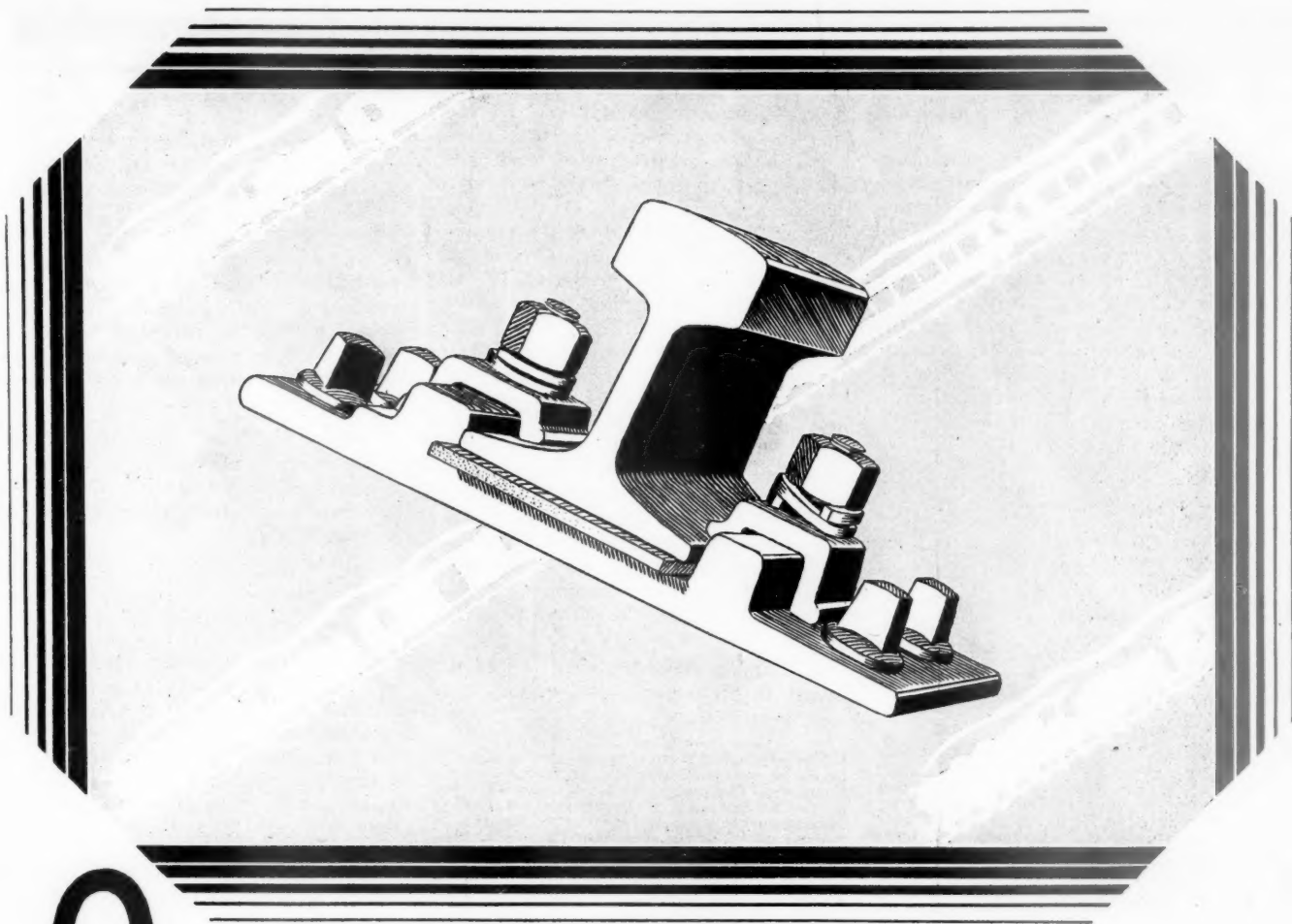
"It is difficult to state the prospects for the year 1931. The unfilled orders on hand at the present time are low. By far the greater part of your company's business, and that of its subsidiary, the Griffin Wheel Company, comes from the railroads. Our earnings will depend largely upon the purchase of new equipment of freight cars, passenger cars and locomotives in the near future. The purchase program of the railroads will in turn depend upon general business conditions. There should be some increase over the past year in our volume of repair business for maintenance of equipment which, during the last six months, has been very light."

"Many railroad operating officials feel that substantial economies and increased efficiency can be effected by replacing much of the present old equipment consisting of cars and locomotives with those of larger capacity and more modern design. Such a program involves new capital financing which, in turn, depends upon the railroads' ability to earn a reasonable rate of return upon their investments. If adequate transportation service is to be maintained, the railroads must receive more liberal treatment and better protection against competition with waterways and the buses and trucks which are now favored by the free use of public highways. The state of public sentiment towards the railroads is of great importance. It is generally realized that their present condition is serious and that constructive measures are necessary. Anything that our stockholders may be able to do in this regard will be helpful."

Bucyrus-Erie Company

The net profit of the Bucyrus-Erie Company for 1930 amounted to \$2,439,461 after all charges. These earnings are equal, after the maximum dividend requirements on the convertible pre-

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A LONG MODERN LINES...

GEO, a modern type of railroad track construction, not only provides for the heavier loads and increased speed of transportation today, but anticipates track requirements for many years to come. 7900 miles of G E O track have already been laid in Germany and the modernization of their main lines will be completed within the next few years. They then plan to run trains at an average speed of 90 miles per hour! Other European countries, quick to follow Germany's lead, are rushing the installation of G E O that they may be abreast of the

times. Here in America, test sections have been installed and many more are now being planned. Greater safety, a radical reduction in maintenance costs, smooth and practically noiseless track, longer life of rails and ties . . . these are chief among the many advantages of G E O. A test section will convince you of its outstanding superiority.

Descriptive literature will be sent at your request, and Carnegie engineers are at your service to discuss with you this important new development.



CARNEGIE STEEL COMPANY - PITTSBURGH

Subsidiary of United  States Steel Corporation

125

TRACK CONSTRUCTION

ferred stock, to \$1.63 a share on the 560,000 shares of common stock outstanding, as compared with \$3,301,961, equal, after preferred dividends, to \$3.70 a share on the common in the preceding year.

A strong financial position was maintained by the company, the current assets at the close of the year amounting to \$14,364,698, including \$4,424,442 of cash and government securities and \$5,338,843 of inventory, against current liabilities of \$2,235,741, leaving a net working capital of \$12,128,957. At the close of the preceding year, current assets of \$15,035,874 included \$2,386,825 of cash and securities as compared with current liabilities of \$3,207,822.

The income account for 1930 and 1929 follows:

	1930	1929
Gross after manufacturing expenses	\$5,610,860	\$6,800,005
Administration and selling expenses	2,425,574	2,561,631
Other income	300,354	176,243
Depreciation	642,373	602,477
Federal taxes	332,654	413,726
Miscellaneous income taxes	71,150	96,453
Net income	2,439,461	3,301,961
Preferred dividends	1,525,879	1,525,880
Common dividends	560,000	480,000
Organization costs		84,295
Surplus for year	353,583	1,211,786

In his remarks to the stockholders, W. W. Coleman, president, said in part:

"Sales in the first two months of 1931 have been less than the average for the last quarter of 1930, but inquiries have increased to a considerable extent and it is expected that there will be a material improvement in orders between now and the middle of the year."

American Locomotive Company Annual Report

The American Locomotive Company, for the year ending December 31, 1930, reported a profit of \$3,778,558 after deducting allowances for depreciation and accrued Federal taxes. The foregoing was equivalent, after preferred dividends, to \$1.41 per share on the 770,000 shares of the company's common stock outstanding; it compares with a profit of \$6,851,301 or the equivalent of \$5.40 per common share for the year ending December 31, 1929.

Selected items from the consolidated income and surplus accounts of the past two years are as follows:

	1930	1929
Net earnings from all sources, after deducting manufacturing, maintenance and administrative expenses	\$5,334,157	\$8,796,039
Depreciation on plants and equipment	1,217,409	1,430,489
	4,116,748	7,365,550
Accrual for Federal taxes	338,190	514,250
Profit for the year	3,778,558	6,851,300
Dividends—Preferred stock	2,695,000	2,695,000
Common stock	3,465,000	6,160,000
Deficit after dividends	2,381,442	2,003,699

Preferred dividends it will be seen from the above table remained unchanged during the year but there was a drop in the total disbursement on common stock from \$6,160,000 in 1929 to \$3,465,000 in 1930. The report states that "in view of the continued low rate of production and the resultant reduction in earnings, it was deemed advis-

able by the board to reduce the common dividend." Dividends of \$2 a share were paid on the common for the first quarter of 1930; \$1 a share in each of the two subsequent quarters and 50 cents in the final quarter.

"The full preferred stock dividends," the report continues, "were paid out of the profits for the year. Of the requirements for the dividend on the common stock \$1,083,557.81 was paid from current earnings and \$2,381,442.19 was drawn from the surplus accumulated in previous years."

The balance in the surplus account after the above deduction was \$19,759,953. The strong cash position of the company remains intact. At the close of the year total current liabilities were \$3,863,269 as against total current assets of \$35,307,424 of which latter \$19,859,188, or more than five times the total current liabilities, was in cash and marketable securities. Cash on hand and in banks alone amounted to \$7,720,327 or double the current liability figure.

William H. Woodin, chairman of the board, in his remarks to the stockholders, says in part as follows:

The widespread general business depression continues to seriously affect the operations of the Company. The production for the year 1930 was at the average rate of twenty-five per cent of capacity and for the last quarter of the year at the rate of fifteen per cent. On January 1, 1931, the unfilled orders on the books of the Company amounted to \$7,528,725, as compared with \$17,834,363 on hand January 1, 1930. With the reduced volume of business, a policy of rigid economy has been adopted by the Company with respect to general administrative and plant operating expenses, and substantial reductions have been made all along these lines.

During the past two years the Company has, through its subsidiary, Heat Transfer Products, Inc., developed a substantial volume of heat exchange equipment business, principally for the oil refining industry. With a view to expanding and broadening these activities in the oil refining equipment field, your Company organized in December, 1930, a new subsidiary, Alco Products, Inc., which will, in addition to absorbing and carrying on the business of Heat Transfer Products, Inc., offer to the refining industry a complete service for the engineering, designing and construction of oil refineries including distilling, fractionating and treating plants. * * * *

Under present economic conditions, it is difficult to forecast the volume of locomotive business to be expected during the coming year, but indications are not lacking that improvement in general business conditions may occur during the year 1931. The programs of railroad consolidations recently approved by the Interstate Commerce Commission are expected to materially improve the status of the railroad equipment business.

OBITUARY

Harry P. Readmon for the past 12 years purchasing agent of the Chicago Pneumatic Tool Company, New York, died on February 26 at the age of 53.

Orville P. Blake, district sales manager of the Inland Steel Company, at Kansas City, Mo., died at Denver, Colo., on February 25. Mr. Blake joined the Inland sales staff in 1906 as manager of the company's St. Louis office. He represented the company in Washington during the war and returned to Chicago in 1919. He traveled over a western territory from the Chicago office until 1925, in which year he opened the Inland's sales office at Kansas City.

Construction

BOSTON & ALBANY.—This company's grade crossing at Concord street, Framingham, Mass., has been designated for elimination by the Commissioner of Public Works of the State of Massachusetts. Surveys are now being made, and work is to be started immediately, under the provisions of the Massachusetts grade crossing elimination law of 1930, which provides that the railroad shall pay 50 per cent of the cost of such eliminations, the remainder being divided between the town, county and state.

BOSTON & MAINE.—The Massachusetts State Department of Public Works has designated for elimination during 1931 the following grade crossings on this company's lines:

State street	Newbury
New State road	Littleton
Main street	Waltham
Great road	Lincoln
Church and Main streets	Winchester
West Main street	Ayer

Surveys are now under way, and work will be started as soon as possible, with the railway paying 50 per cent of the cost, the state from 35 to 40 per cent and the towns and counties benefiting by the eliminations the remaining 10-15 per cent, in accordance with the provisions of a state law.

CENTRAL OF NEW JERSEY.—This company is engaged in the construction of a steel and concrete bridge, 987 ft. long and 157 ft. above water level, over Still Creek Gorge, near Hometown, Pa. When completed the new structure will be the highest of its type in the East. Abutments are now being placed by Whittaker & Diehl, Harrisburg, Pa., general contractors for the substructure, while a contract for the fabrication of 1,600 tons of steel for the superstructure has been let to the Phoenix Bridge Company.

NEW YORK CENTRAL.—Contracts have been awarded to James A. Meenan, Inc., New York, for alterations to various buildings on the West Side of New York City; to I. M. Ludington's Sons, Inc., Rochester, N. Y., for the reconstruction of Bridge 0-150, Charlotte, Rochester; and to the Hecker-Moon Company, Cleveland, Ohio, for the elimination of a grade crossing at Wende road, Wende, N. Y.

NEW YORK, NEW HAVEN & HARTFORD.—Pursuant to the provisions of the Massachusetts grade crossing elimination law of 1930, which provides that 50 per cent of the cost of rail and highway grade separation work shall be paid by the railroad concerned, from 35 to 40 per cent by the state, and the remaining 10-15 per cent by the town and county involved, the Massachusetts State Department of Public Works has designated for 1931 elimination the following crossings of this company's lines: Water street, Quincy; Waverly street, Framingham, and Main street, Weymouth. Surveys are now under way, and work is to be started immediately.

Continued on Next Left Hand Page

ALWAYS PARALLEL

GOOD SERVICE

GOOD PIPE

Faster freight and passenger schedules, requiring higher operating efficiency, place a heavy responsibility upon the men who specify mechanical equipment.

Experience shows that good service and good pipe go hand in hand.

NATIONAL Scale Free Pipe has been developed to eliminate choking of air-actuated equipment and clogging of small orifices in train lines. Clean, smooth pipe means full pressure in the lines and efficient operation of brake equipment.

Likewise, NATIONAL Copper-Steel Pipe—manufactured and used for nearly twenty years—prolongs the useful life of piping on locomotives and cars.

Bulletins Nos. 7 and 11 describe the Scale Free Process and the development of Copper-Steel Pipe. These two features have contributed in making NATIONAL—

America's Standard Wrought Pipe

NATIONAL TUBE COMPANY

*Subsidiary of United States Steel Corporation
PITTSBURGH, PA.*



NATIONAL PIPE

Financial

ATCHISON, TOPEKA & SANTA FE.—Bonds.—The Dodge City & Cimarron Valley has been authorized by the Interstate Commerce Commission to issue a 6 per cent, series B, first mortgage bond for \$1,800,000, to be delivered to the Santa Fe in satisfaction of indebtedness. The Commission has authorized the South Plains & Santa Fe to issue a first mortgage 6 per cent bond, series B, for \$1,400,000, to be delivered to the Santa Fe in satisfaction of indebtedness.

CHICAGO & WESTERN INDIANA.—Bonds.—The Interstate Commerce Commission has authorized this company to issue \$228,000 of its 4 per cent consolidated 50-year bonds, maturing in 1952. The issue is authorized for sale to Lanborn Hutchings & Co., of Chicago, at 89, after a deduction of a brokerage commission of one-quarter of one per cent, which will make the average annual cost to the railway approximately 4.83 per cent.

CHICAGO, ROCK ISLAND & PACIFIC.—Reduces Dividend.—Directors of this company have reduced the annual dividend basis from \$7 to \$5.

DEATH VALLEY.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon, as to interstate and foreign commerce, its entire line from Death Valley Jct., Cal., westerly to Ryan, 20.4 miles.

LEHIGH VALLEY.—Reduces Dividend.—Directors of this company have reduced the annual dividend basis from \$3.50 to \$2.50.

NEW YORK CENTRAL.—Bonds.—The Interstate Commerce Commission has authorized the Michigan Central to issue and the New York Central to guarantee and sell \$4,000,000 of the former company's refunding and improvement mortgage 4½ per cent, series C bonds, maturing in 1979. The sale is authorized to J. P. Morgan & Co. at 100½, making the average annual cost to the railroad 7.75 per cent.

PENNSYLVANIA.—Control.—The Interstate Commerce Commission has authorized the Western New York & Pennsylvania, a subsidiary of the Pennsylvania R.R. to acquire control of the Connecting Terminal Railroad, Buffalo, N. Y., by purchase of its entire capital stock.

SOUTHERN.—Bonds.—The Interstate Commerce Commission has authorized this company to issue \$1,310,000 of 5 per cent first consolidated mortgage 5 per cent bonds to be sold to J. P. Morgan & Co. at 107, which will make the average annual cost to the railroad approximately 4.65 per cent.

ST. LOUIS-SAN FRANCISCO.—Dividend Postponed.—Directors of this company have postponed action on the dividend due April 1.

VIRGINIAN.—Asks to Operate over K. & M.—This company has applied to the

Interstate Commerce Commission for authority to operate trains under an agreement over the line of the Kanawha & Michigan between Deepwater bridge over the Kanawha river and Charleston, W. Va., 31 miles. The application says that arrangements have been made by which passenger trains will be operated between Charleston and Princeton and Roanoke, Va., and other stations on the Virginian.

Average Prices of Stocks and of Bonds

	Mar. 3	Last week	Last year
Average price of 20 representative railway stocks.	91.44	96.47	133.96
Average price of 20 representative railway bonds.	93.89	94.14	92.64

Dividends Declared

Alabama & Vicksburg.—Capital, \$3, payable April 1 to holders of record March 9.
 Boston & Maine.—Common, \$1; Prior preference 7 per cent, \$1.75; First preferred A, \$1.25; First preferred B, \$2; First preferred C, \$1.75; First preferred D, \$2.50; First preferred E, \$1.13; 6 per cent preferred, \$1.50; all quarterly, payable April 1 to holders of record March 7.
 Erie & Pittsburgh.—\$.87½, quarterly, payable March 10 to holders of record February 28.
 Missouri Pacific.—Preferred, \$1.25, quarterly, payable March 31 to holders of record March 13.
 Texas & Pacific.—Common, \$1.25, quarterly, payable March 31 to holders of record March 13.
 Vicksburg Shreveport & Pacific.—Common and Preferred, \$2.50, payable April 1 to holders of record March 9.
 Reading.—Second preferred, \$.50, quarterly, payable April 9 to holders of record March 19.

Railway Officers

EXECUTIVE

R. W. Bramwell has been appointed assistant to vice-president of the Pittsburgh & West Virginia, with headquarters at Pittsburgh, Pa.

J. E. Davenport, assistant to assistant general manager of the New York Central, has been appointed assistant to vice-president, with headquarters as before at New York.

F. R. Eckard has been appointed special representative of the Toledo, Peoria & Western and **O. W. Limestall** has been appointed superintendent, succeeding Mr. Eckard. Both will have headquarters at Peoria, Ill.

FINANCIAL, LEGAL AND ACCOUNTING

E. H. Trumpler, chief clerk to the vice-president, accounting department, of the Illinois Central, has been promoted to assistant general auditor, with headquarters at Chicago.

Kenneth F. Burgess, general solicitor of the Chicago, Burlington & Quincy, with headquarters at Chicago, resigned on March 1 to become a partner in the law firm of Cutting, Moore & Sidley at Chicago and general counsel of the Illinois Bell Telephone Company.

Walter McFarland, general attorney of the C. B. & Q., with headquarters at Chicago, has been placed in charge of commerce matters for that railroad succeeding Mr. Burgess in his duties and **Eldon M. Martin**, who was formerly connected with the legal department of the Burlington, has been appointed assistant general attorney with headquarters at Chicago; he will devote his attention to commerce matters. Mr. Burgess has been connected with the legal department of the Burlington for the past 15 years. He was born at Oshkosh, Wis., on October 16, 1887, and obtained his first railroad experience in 1907 as a field draftsman on the Erie. In 1909 he graduated from an academic course at the University of Wisconsin, five years later obtaining his degree in law. He then became a member of the law firm of Meyer & Burgess at Lancaster, Wis., and later circuit court commissioner of Grant county, Wis. Mr. Burgess was appointed as an attorney for the Burlington at Chicago in 1915, and was successively promoted to general attorney and general solicitor. He had been general solicitor since 1923. During federal control of the railroads he served as a regional commerce counsel for the United States Railroad Administration.

OPERATING

J. W. Davin, assistant superintendent of transportation of the Chesapeake & Ohio, has been appointed assistant general superintendent, transportation, with headquarters at Huntington, W. Va.

A. R. Miller, freight trainmaster of the St. Louis (Mo.) Terminal division of the Missouri Pacific, has been promoted to superintendent of that division, with headquarters as before at St. Louis, succeeding **W. R. Petty**, deceased. **G. W. Booker** has been appointed trainmaster of the St. Louis terminal division, with headquarters at St. Louis.

E. W. Cameron has been appointed assistant superintendent of the Allandale division of the Canadian National at Allandale, Ont., succeeding **W. J. Little**, retired.

E. W. Kamp has been appointed trainmaster of the Western division of the New York Central at Chicago.

The Iowa and Minnesota divisions of the Illinois Central have been consolidated and placed under the jurisdiction of **W. S. Williams**, general superintendent of the Western lines, with headquarters at Waterloo, Iowa. The Wisconsin division, which was formerly under the jurisdiction of the Western lines has been transferred to the jurisdiction of the Northern lines of which **J. W. Hevron** is general superintendent, with headquarters at Chicago. **L. E. McCabe**, superintendent of the Minnesota division with headquarters at Dubuque, Iowa, has retired under the pension rules of the company. **J. T. Stanford**, superintendent of the Iowa division, with headquarters at Fort Dodge, Iowa, has been trans-

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DOWN...go STAYBOLT REPLACEMENTS



Central Alloy Division
REPUBLIC STEEL
CORPORATION

Massillon, Ohio



■ In 1926 one railroad operating in a bad water district standardized on Agathon Nickel Iron and Toncan Iron for staybolt replacements.

■ See how staybolt performance improved in the ensuing years —

Average miles per	1926	1927	1928	1929
staybolt renewal	402.6	452.6	722.4	836

■ The decrease in number of leaky and defective staybolts has been so great that the "hot gang" is doing all the required work and spending half the time that was formerly needed.

■ Alloy staybolt irons developed by Republic Steel Corporation have shown their ability to reduce staybolt renewals on many roads. Their use is economy.

ferred to the St. Louis division with headquarters at Carbondale, Ill., succeeding **F. E. Hatch** who has been transferred to the Memphis division with headquarters at Memphis, Tenn. Mr. Hatch replaces **J. M. Walsh**, who has retired under the pension rules of the company. The Greenville and Vicksburg route divisions of the Yazoo & Mississippi Valley have been consolidated under the jurisdiction of **J. M. Chandler**, superintendent of the Vicksburg Route division. The headquarters of the consolidated division have been located at Vicksburg, Miss. **T. L. Dubbs**, superintendent of the Greenville division, with headquarters at Greenville, Miss., has retired from active service.

J. E. Reilly, who has been promoted to general superintendent of the Elgin, Joliet & Eastern, with headquarters at Joliet, Ill., has been connected with that railroad for more than 37 years. He was born at Odell, Ill., on March 1, 1874, and after attending the public schools in that city he obtained his first railway experience on April 1, 1892, on the Elgin, Joliet & Eastern. A year later



J. E. Reilly

he was promoted to conductor, then being advanced to assistant trainmaster in November, 1911. Mr. Reilly was promoted to trainmaster in October, 1916, and to superintendent of the Joliet division, with headquarters at Joliet, in February, 1927. His further promotion to general superintendent of the E., J. & E. became effective on January 1.

The jurisdiction of **W. O. Dilley**, superintendent of the Louisville, Cincinnati and Lexington division of the Louisville & Nashville, with headquarters at Louisville, Ky., has been extended to include the Louisville division, succeeding **William F. Sheridan**, who retired from active service on March 1, because of ill health. Mr. Sheridan has been in railway service for nearly 47 years. He was born at Newark, Ohio, on March 26, 1868, and obtained his first railroad experience as a messenger boy in a joint office of the Pennsylvania and the Baltimore & Ohio in 1884. Later he served as a telegraph operator and a train dispatcher on the

Baltimore & Ohio and as a train dispatcher and master of trains on the Louisville & Nashville. From 1903 to 1908 he was superintendent of transportation of the Mexican International (now part of the National of Mexico), then being appointed inspector of transportation of the Louisville & Nashville. In 1913 Mr. Sheridan was advanced to assistant superintendent of transportation. He had been superintendent of the Louisville division of the L. & N. since 1917.

TRAFFIC

H. F. Klocker has been appointed assistant general freight agent of the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo.

R. F. Clark, general agent for the Canadian National at Chicago, has been promoted to assistant general freight agent at the same point.

Charles J. Rieger, express traffic agent of the Louisville & Nashville, has been promoted to general mail and express agent, with headquarters at Louisville, Ky.

W. P. Stapleton, agricultural development agent for the Northern Pacific at Spokane, Wash., has been appointed western agricultural development agent, with headquarters at Seattle, Wash., succeeding **E. F. Benson**, who has retired under the pension rules of the company.

Hunter V. Herndon, secretary to general freight traffic manager, has been appointed Southern freight agent of the Reading, with headquarters at Atlanta, Ga., succeeding **Neil G. Skillman**, who has been transferred to Detroit, Mich., as general agent. Mr. Skillman replaces **James C. Beene**, who has been appointed division freight agent at Williamsport, Pa.

J. J. Koch, assistant to the general traffic manager of the Pennsylvania, with headquarters at Pittsburgh, Pa., retired from active service on March 1, after more than 52 years of service. Mr. Koch was born in Pittsburgh on February 10, 1861, and was educated in the Pittsburgh public schools and business college. He entered the service of the Pennsylvania as a clerk in the general freight office on January 3, 1879, and after a series of promotions, became assistant freight traffic manager in 1918 and two years later freight manager. In July, 1924, Mr. Koch was appointed traffic manager of the Central region, and, in 1928, assistant to the general traffic manager, the position he now relinquishes to retire.

C. B. Andrews, district passenger agent of the Canadian Pacific at Winnipeg, Man., has been appointed passenger agent for the Maritime district, with headquarters at Montreal, Que., as announced in *Railway Age* of February 21, page 431. Mr. Andrews was born on July 3, 1893. He entered the service

of the Canadian Pacific in May, 1910, as clerk in the superintendent's office at Souris, Man., and later became stenographer in that office. In 1911 he was appointed ticket and freight clerk at Souris, which position he held until May, 1916, when he was transferred to



C. B. Andrews

Winnipeg, Man., as ticket clerk in the passenger department. In August, 1918, he became chief clerk in the city ticket office at Winnipeg, and in April, 1923, he was appointed soliciting passenger agent. Mr. Andrews was promoted to district passenger agent at Winnipeg in August, 1926, the position he held until his recent appointment.

PURCHASES AND STORES

E. F. Hasbrook, who has been promoted to purchasing agent of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been connected with that railroad for nearly 43 years.



E. F. Hasbrook

He was born on October 11, 1871, at Chicago, and after attending the public schools in that city, entered railway service in the stationery department of the Burlington on August 16, 1888. During the following 17 years Mr. Hasbrook advanced successively through various positions in the purchasing de-

LARGER NOZZLES



LOCOMOTIVES are drafted today for the present style of grates.

Nozzles are now of sizes to meet these designs requiring heavy fires.

By providing an even distribution of air, FIREBARS permit an increase in nozzle diameters and the attainment of a thin fire, never more than 4 inches deep. It is then that you have

BETTER FIRES

and the lessened fuel required is noticeable in the tender.

FIREBAR CORPORATION
CLEVELAND OHIO

partment of the Burlington, and in November, 1905, he was promoted to chief clerk in that department. On September 1, 1918, he was promoted to assistant purchasing agent, with headquarters at Chicago. His further promotion to purchasing agent became effective on March 1.

J. P. Blum, who has been promoted to assistant purchasing agent of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been in the continuous service of that railroad for nearly 30 years. He was born at Chicago on May 4, 1882, and attended the Lake View High School in that city and the North Chicago Business College. Mr. Blum obtained his first railway experience as a stenographer in the purchasing department of the Burlington at Chicago on July 1, 1900. For the



J. P. Blum

following 28 years he occupied various minor positions in the purchasing department, until September 1, 1928, when he was promoted to chief clerk to the purchasing agent. His promotion to assistant purchasing agent, with headquarters at Chicago, became effective on March 1. For several months during the World War, in 1918, Mr. Blum served as purchasing agent of the Northwest Engineering Company, Green Bay, Wis., which was at that time engaged in the building of boats for the United States government.

ENGINEERING AND SIGNALING

J. L. Kirby has been appointed chief engineer, maintenance of way, of the Seaboard Air Line, with headquarters at Norfolk, Va. The position of engineer, maintenance of way, formerly held by Mr. Kirby, has been abolished.

MECHANICAL

H. W. Reinhardt, master mechanic of the Arkansas division of the Missouri Pacific, with headquarters at Little Rock, Ark., has been appointed assistant superintendent of motive power of the Chi-

cago Great Western, with headquarters at Oelwein, Iowa.

OBITUARY

James G. Mooney, formerly general eastern passenger agent of the Chicago & Eastern Illinois, died at his home in Yonkers, N. Y., on February 28. He was 63 years of age.

Frederick W. Dunton, former treasurer of the Long Island, died of heart disease at his home at Huntington, Long Island, N. Y., on February 26. He was 79 years' old.

Walter E. Martin, assistant secretary and assistant treasurer of the Pere Marquette, with headquarters at Detroit, Mich., died on February 25 at the Jefferson hospital, in that city.

T. K. Scott, former general manager of the Georgia Railroad under the leasehold of the Louisville & Nashville and Atlantic Coast Line, died recently at Augusta, Ga.

Frank H. McGuigan, former vice-president of Grand Trunk, died at Montclair, N. J., on March 3 at the age of 81.

A. B. Garretson, formerly for 13 years president of the Order of Railway Conductors and a member of the Federal Commission on Industrial Relations, died at Cedar Rapids, Iowa, on February 27, at the age of 74 years. Prior to his election as vice-president of the Order of Railway Conductors in 1889 Mr. Garretson served as a conductor for a number of years on a railroad that is now a part of the Chicago, Burlington & Quincy, on the Missouri-Kansas-Texas, the Mexican National and the Mexican Central. He was president of the conductor's brotherhood from 1906 to 1919.

W. R. Petty, superintendent of the St. Louis (Mo.) terminal division of the Missouri Pacific, died at the Missouri Pacific hospital in that city on February 25 following a month's illness. Mr. Petty was born at Sumner, Ill., on June 9, 1880. After graduating from the Sumner High School in April, 1896, he entered railway service five years later as a switchman on the Missouri Pacific. Later he advanced successively through the positions of assistant yardmaster and general yardmaster. On March 16, 1926, he was promoted to assistant superintendent at St. Louis, being further promoted to superintendent of the St. Louis terminals on April 1, 1928.

A. Hunter Boyd, Jr., general attorney of the Baltimore & Ohio, succumbed to a heart attack on February 27, and died soon after his arrival at the John Hopkins Hospital, Baltimore, Md., to which he was immediately removed following the attack. Mr. Boyd was born at Cumberland, Md., on May 16, 1878; was educated at Allegany County Academy, Cumberland, and graduated from Princeton University in 1900, and from the University of Maryland Law School

in 1902. Mr. Boyd first entered the service of the B. & O. on February 1, 1907, as counsel, and was later appointed assistant general attorney. He was advanced to general attorney on February 1, 1916, which position he held until his death.

William J. Haylow, superintendent of transportation of the Louisville & Nashville, with headquarters at Louisville, Ky., died at his home in that city on March 1, after an illness of several weeks. Mr. Haylow was born at Dundas, Ont., on August 17, 1858, and after attending public schools at Ann Arbor, Mich., obtained his first railroad experience in 1876 as a telegraph operator on the Michigan Central. From 1878 to 1889 he served as a telegraph operator on the Grand Rapids & Indiana (now part of the Pennsylvania) at Fort Wayne, Ind., and as a train dispatcher and master of trains on the Louisville & Nashville at Montgomery, Ala. For the following 16 years he was master of transportation of the Alabama Midland (now part of the Atlantic Coast Line), superintendent of the Central of Georgia and superintendent of transportation of the Plant System and its successor, the Atlantic Coast Line. In 1905 Mr. Haylow became master of trains of the Louisville & Nashville and later superintendent of the Savannah (Ga.) Electric Company. In 1907 he was appointed transportation inspector on the L. & N. at Birmingham, Ala. For several months in 1917 he served as assistant superintendent of transportation of the L. & N. and in November of that year he was promoted to superintendent of transportation.

Samuel Hill, former president of a number of railroads which are now part of the Great Northern, and a man of widely varied activities, died at St. Vincent's hospital, Portland, Ore., on February 26 after an illness of three weeks. He was 74 years of age and was born at Deep River, N. C. After receiving degrees from Haverford College and Harvard University, he was admitted to the bar in 1880 and entered railway service as a rodman on the Lake Superior & Mississippi (now a part of the Great Northern). He then served successively as associate counsel of the St. Paul & Northern Pacific (now part of the Northern Pacific) and the Minneapolis & St. Louis and with the St. Paul, Minneapolis & Manitoba (Now part of the Great Northern). From 1890 to 1900 he was president for various periods of three Great Northern subsidiaries, the St. Paul, Minneapolis & Manitoba, the Eastern of Minnesota and the Montana Central. Since 1900 Mr. Hill had been particularly active as an officer of a number of good roads associations in the Northwest. In 1916 when the transportation of import shipments of war munitions for Russia across Siberia was badly congested, Mr. Hill acted for the allied nations in untangling the situation at Vladivostok, Russia, and restoring munition train service from that port to the Northern battle front.